Rockwell
International

overhaul manual
(with illustrated parts list)

Collins Air Transport Division

Collins 339H-2
Radio Altitude Indicator

(522-4825-002, -004, -005, -006, -007, -008)

Collins Divisions
Cedar Rapids, Iowa 52406
(319) 395-1000
Cable COLINRAD Cedar Rapids

Rockwell International

June 1, 1979

TO: HOLDERS OF 339H-2 RADIO ALTITUDE INDICATOR (522-4825-002, -004, -005, -006)
(523-0762906)

REVISION NO 8 DATED FEB 1/79

HIGHLIGHTS

Pages that have been added, revised, or deleted are indicated below together with the highlights of the change. Remove and insert the affected pages and enter this revision number and date to the Record of Revisions Sheet. Retain any superseded pages desired to maintain peculiar unit identity or history.

PAGE NUMBER	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
List of Effective Pages, pages 1 thru 5/6	Revised to indicate added, revised, and/or deleted pages.		
List of Effective Temporary Revision Pages, pages 1/2	Updated format.		
Service Bulletin List, pages 1, 2; added pages 3/4	Revised to include service bulletins 21 thru 24.		
Table of Contents, pages 1 thru 5	Updated format. Included modification history.		
Frontispiece page 0	Updated format.		
1, 4, 5, 6, 7, 8	Revised to incorporate new models.		CPN 522-4825-007 and 522-4825-008

PAGE NUMBER	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
17	Clarified theory of 500-foot alert.		CPN 522-4825-005 only
26	Corrected theory on audio warn circut operation.		CPN 522-4825-002, -004, -005 only
48A/48B, 49/50	Corrected reference designator errors.		CPN 522-4825-005 only
202	Revised to include additional materials per temporary revision no 5.		All models
206	Revised to include cleaning procedures for tapes per temporary revision no 5.		All models
518, 519	Revised per temporary revision no 6.		All models
702, 703	Revised to incorporate new models and a test procedure index.		CPN 522-4825-007 and 522-4825-008
708A/708B, 718, 755, 789	Revised to incorporate new model.	SB 22	CPN 522-4825-008
717	Corrected error.		All models
711, 778M	Revised to correct error.		All models
718A/718B	Revised minimum performance test per temporary revision no 6.		All models
720A	Revised minimum performance test per temporary revision no 4.		All models
746	Revised to correct error per temporary revision no 4.		All models
747	Revised to clarify flag alarm input limits per temporary revision no 5.		All models
770	Revised altitude signal input limit per temporary revision no 5.		All models
771, 772	Corrected error.		CPN 522-4825-002, -004, -005 only
778E	Revised per temporary revision no 4.		All models

PAGE NUMBER	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
778G	Revised to change sign per temporary revision no 4.		All models
783	Revised to clarify instruction per temporary revision no 4.		All models
801, 802; added 802A, 802B	Added modification history to troubleshooting section.		All models
803, 804, 805/806, 807/808, 808A/808B, 809/810, 811/812, 813/814, 815, 816, 817/818, 819/820, 821/822, 823/824	Revised to include latest schematic changes.	21 23, 24	CPN 522-4825-002 CPN 522-4825-006, -007 only
1006	Revised test fixture component and parts list.		All models
1010, 1011, 1012, 1013, 1014, 1016, 1017, 1019	Revised and corrected errors in test fixture test. Added test steps.		
1101 thru 1158; added 1159 thru 1161/1162	Includes all production changes to the equipment. NOTE: Illustrated Parts List pages are applicable to all equipment configurations.		

PUBLICATIONS DEPARTMENT

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Apr 15/70
8th Revision, Feb 1/79

Rockwell
International

overhaul manual
(with illustrated parts list)

Collins 339H-2
Radio Altitude Indicator

(522-4825-002, -004, -005, -006, -007, -008)

This manual includes coverage of the following equipment:

	Model No	*Collins Part No*
Radio Altitude Indicator	*339H-2*	*522-4825-002* *522-4825-004* *522-4825-005* *522-4825-006* *522-4825-007* *522-4825-008*

Collins Air Transport Division
Avionics and Missiles Group
Rockwell International
Cedar Rapids, Iowa 52406

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RECORD OF REVISIONS

REV NO	ISSUE DATE	DATE INSERTED	BY	REV NO	ISSUE DATE	DATE INSERTED	BY	REV NO	ISSUE DATE	DATE INSERTED	BY
1	Oct 1/70										
2	Aug 1/71										
3	Dec 1/71										
4	Sep 30/72										
5	Feb 1/73										
6	Feb 1/74										
7	Jul 1/76										
8	Feb 1/79										

RECORD OF TEMPORARY REVISIONS

TEMPORARY REV NO	PAGE NUMBER	ISSUE DATE	BY	DATE REMOVED	BY
1	725	Sep 15/70	Collins	Oct 1/70	Collins
2	1006	Oct 15/74	Collins	Jul 1/76	Collins
3	770	Dec 10/76	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	720A	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	746	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	778E	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	778G	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	783	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
4	IPL	Apr 15/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
5	202	Aug 10/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
5	206	Aug 10/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
5	747	Aug 10/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
5	770	Aug 10/77	Rockwell-Collins	Feb 1/79	Rockwell-Collins
6	518	Apr 20/78	Rockwell-Collins	Feb 1/79	Rockwell-Collins
6	519	Apr 20/78	Rockwell-Collins	Feb 1/79	Rockwell-Collins
6	718A/718B	Apr 20/78	Rockwell-Collins	Feb 1/79	Rockwell-Collins

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List of Effective Temporary Revision Pages	*1	Feb 1/79
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Service Bulletin List	*1	Feb 1/79
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	30	Blank
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	38	Dec 1/71
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	40	Blank
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	42	Dec 1/71

*The asterisk indicates pages changed, added, or deleted by the current change.

We welcome your comments concerning this instruction book. Although every effort has been made to keep it free of errors, some may occur. When reporting a specific problem, please describe it briefly and include the instruction book part number, the paragraph or figure number, and the page number.

Send your comments to: Publications Department
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Rockwell International
Cedar Rapids, Iowa 52406

CAUTION

The material in this manual is subject to change. Before attempting any maintenance operation on the equipment covered in this manual, verify that you have complete and up-to-date publications by referring to the applicable Publications and Service Bulletin Indexes.

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	778I	Not Used
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This page replaces List of Effective Temporary Revision Pages dated July 1/76.

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2	Ac servo amplifier reduction 522-4825-002 only.	1	Oct 15/70
3	Provision for extinguishing DH light in 0- to 500-foot range. 522-4825-002 and 522-4825-004. Superseded by Service Bulletin No 5.	3	Dec 1/71
4	Replacement of gear clusters. 522-4825-002 and 522-4825-004.	3	Dec 1/71
5	Extinguish decision height indicator below selected decision height. 522-4825-002 and 522-4825-004.	3	Dec 1/71
6	Ensure operation through brief power interruption. 522-4825-002 and 522-4825-004.	6	Feb 1/74
7	Ensure operation through brief power interruption. 522-4825-005.	6	Feb 1/74
8	DH tape and knob replacement. 522-4825-005.	6	Feb 1/74
9	DH indicator transient protection. 522-4825-002, 522-4825-004, and 522-4825-005.	6	Feb 1/74
10	DH counter replacement. 522-4825-002 and 522-4825-004.	6	Feb 1/74
11	Replacement of tape roller gears. 522-4825-002, 522-4825-004, 522-4825-005, and 522-4825-006.	6	Feb 1/74
12	Inhibit lighting of DH lamp during takeoff. 522-4825-006.	6	Feb 1/74

SERVICE BULLETIN LIST

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13	Eliminate false DH indications. 522-4825-002, 522-4825-004.	6	Feb 1/74
14	Eliminate nuisance DH lights. 522-4825-005.	6	Feb 1/74
15	Prevent false activation of altitude trips above 2500 feet altitude caused by power interruptions and amplitude variations. 522-4825-006.	6	Feb 1/74
16	Eliminate interference to the audio warning signal. 522-4825-006.	6	Feb 1/74
17	Provide means of testing DH circuit while aircraft is on ground. 522-4825-006. Superseded by SB 19.	7	Jul 1/76
18	Add fuse to 26-V ac power circuit to protect the rt unit. All models. Superseded by SB 20.	7	Jul 1/76
19	Provide improved means of testing DH circuit while aircraft is on ground. 522-4825-006. Supersedes SB 17.	7	Jul 1/76
20	Increase fuse size to avoid burnout during test. All models. Supersedes SB 18.	7	Jul 1/76
21	Remove fuse to 26-V ac power circuit. All models.	8	Feb 1/79
22	+5- to +28-V DH lighting conversion. Converts 522-4825-002 to 522-4825-008.	8	Feb 1/79
23	Provide 100- and 150-foot 860F-1 self-test altitude compatibility. 522-4825-006.	8	Feb 1/79

SERVICE BULLETIN LIST

SERVICE BULLETIN NO	SUBJECT	MANUAL REVISION NUMBER	MANUAL REVISION DATE
24	Provide improved circuit for the -15-V power supply. 522-4825-006.	8	Feb 1/79

NOTE: Refer to modification history, figure 801A, for further information.

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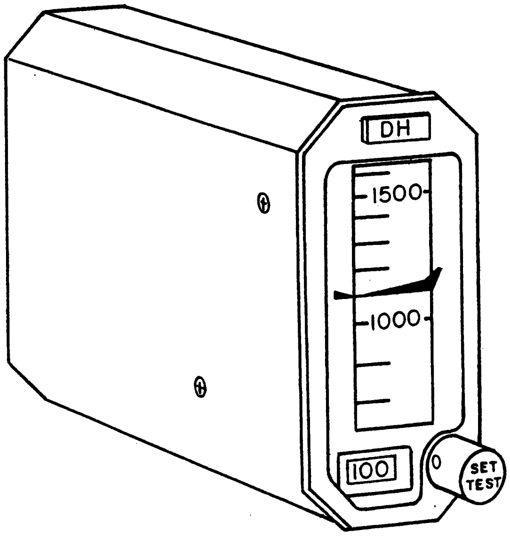
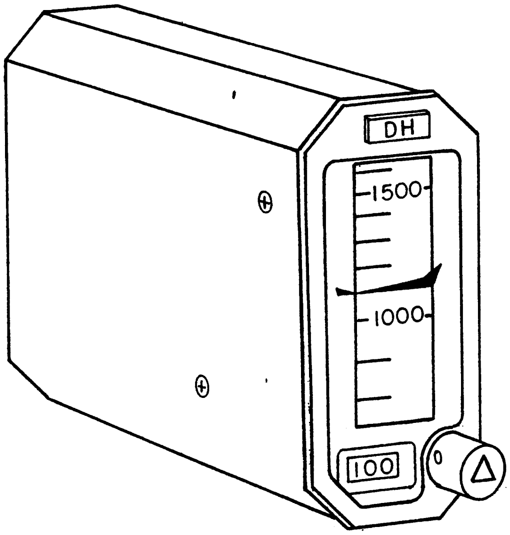


A – 522-4825-002, 522-4825-006



B – 522-4825-004,522-4825-005

TP2-347

339H-2 Radio Altitude Indicator
Frontispiece

DESCRIPTION AND OPERATION

1. General

Decision height is referred to as DH throughout this manual. Figure 1 provides a list of the indicators covered in this manual and their basic differences.

MODEL NO	DESCRIPTION	COLLINS PART NUMBER
339H-2	Rocket-red flag. Striped area of tape below 0 foot goes to left. Yellow wedge on tape from 0 to 190 feet. Functional test switch. +5-volt DH lighting. 1000-Hz tone burst audio warn. Manual DH indicator turnoff below decision height.	522-4825-002
339H-2	Fire-orange flag. Striped area of tape below 0 foot goes to right. No yellow wedge on tape from 0 to 190 feet. No functional test switch. +28-volt DH lighting. 1000-Hz tone burst audio warn. Manual DH indicator turnoff below decision height.	522-4825-004
339H-2	Fire-orange flag with OFF silk screened. Striped area of tape below 0 foot goes to right. No yellow wedge on tape from 0 to 190 feet. No functional test switch. +28-volt DH lighting. 1000-Hz tone burst audio warn. 1000-Hz, 2-second continuous tone at 500 feet. Manual DH indicator turnoff below decision height.	522-4825-005
339H-2	Fire-orange flag. Striped area of tape below 0 foot goes to left. Yellow wedge on tape from 0 to 190 feet. Functional test switch. +28-volt DH lighting. 400-Hz, increasing to 800-Hz, continuous tone audio warn. Manual DH indicator turnoff below DH and automatic DH indicator and audio warn turnoff at 10 feet.	522-4825-006
339H-2	Same as CPN 522-4825-006 except for minor tape markings. NOTE: All references to CPN 522-4825-006 also apply to CPN 522-4825-007 unless otherwise specified.	522-4825-007
339H-2	Same as CPN 522-4825-002 except that power for DH lighting is +28 V. NOTE: All references to CPN 522-4825-002 also apply to CPN 522-4825-008 unless otherwise specified.	522-4825-008

Equipment Covered
Figure 1

2. Purpose of Equipment.

The 339H-2 Radio Altitude Indicator is part of the AL-101/101A Radio Altimeter System and performs the following functions in the system:

A. Converts the positive auxiliary altitude output voltage (dc analog altitude signal) from the 860F-1 Radio Altimeter to an accurate visual indication of the aircraft's altitude above the terrain.

B. Provides a warning to the pilot when a malfunction occurs in any part of the AL-101/101A Radio Altimeter System.

C. Permits the pilot to select a decision altitude for approach.

D. Provides an indication when the aircraft has descended to the decision altitude.

E. On 522-4825-002 and 522-4825-006 radio altitude indicators, a self-test switch provides the pilot with a functional test of the AL-101/101A Radio Altimeter System, excluding antennas.

F. Provides an audio warn signal output when the aircraft has descended to 50 feet above the decision height and is removed when the aircraft has reached the decision height.

G. On indicators with CPN 522-4825-005, a 2-second tone burst is provided at 500 feet to alert the pilot when the selected decision height is below 425 feet.

The 860F-1 Radio Altimeter is the only equipment directly associated with the 339H-2 Radio Altitude Indicator. The 860F-1 furnishes the indicator with the required input signals and all of the basic power for operation.

Figure 2 lists related publications.

PUBLICATION	COLLINS PART NUMBER
AL-101A Radio Altimeter System, Maintenance Manual (with installation data)	523-0763337
860F-1 Radio Altimeter, Overhaul Manual (for Collins part number 522-3698-011, 522-3698-012, and 522-3698-013)	523-0763306
860F-1 Radio Altimeter, Overhaul Manual (for Collins part number 522-3698-014)	523-0763982

Related Publications
Figure 2 (Sheet 1 of 2)

PUBLICATION	COLLINS PART NUMBER
437X-1/1A Antenna, Overhaul Manual	523-0757977
339H-2 Radio Altitude Indicator, Overhaul Manual (for Collins part number 522-4825-001)	523-0759413
Electromechanical Components, Overhaul Manual (5 volumes)	523-0757895

Related Publications
Figure 2 (Sheet 2 of 2)

3. Equipment Specifications

Figure 3 lists the specifications for the 339H-2 Radio Altitude Indicator.

CHARACTERISTIC	SPECIFICATION
Applicable specifications	
ARINC	Characteristic 552
TSO	C87
RTCA paper	96-63/DO-123
Physical specifications	
Size	
Bezel	1.880 inches (4.775 cm) wide; 4.060 inches (10.3124 cm) high
Case	
Width	1.795 inches (4.559 cm)
Height	3.975 inches (10.0965 cm)

Equipment Specifications
Figure 3 (Sheet 1 of 6)

CHARACTERISTIC	SPECIFICATION
Maximum length (measured from rear of bezel to end of connector)	
522-4825-002, 522-4825-004, 522-4825-005, and 522-4825-008	8.000 inches (20.32 cm) maximum
522-4825-006 and 522-4825-007	8.750 inches (22.225 cm) maximum
Weight	2.5 lb (1.134 kg) maximum
Altitude range (above terrain)	0 to 2500 feet
Viewing angle	
Front	30 degrees
Sides	30 degrees
Bottom	0 degree
Accuracy -- DH indication with respect to digital preset	3 feet or 3%, whichever is greater, aircraft descending 20 feet or 3%, whichever is greater, aircraft ascending
Mounting	Front or rear
Exterior finish	Gray, per FED-STD-595, color no 36118
Markings	
Altitude tape (522-4825-002, 522-4825-006, 522-4825-007, and 522-4825-008) background color	
0 to 500 ft	Lusterless green, FED-STD-595, color no 34108, with tapered area of yellow, FED-STD-595, color no 33538 between 0 and 90 ft
500 to 2500 ft	
(522-4825-002, -006, -008 only)	Blue, Munsel, color no 6B6, 7016.3
(522-4825-007 only)	Blue, Munsel, color no 460

Equipment Specifications
Figure 3 (Sheet 2)

CHARACTERISTIC	SPECIFICATION
Above 2500 ft	Black
Ground symbol, below 0 ft	Alternate yellow, FED-STD-595, color no 33538, and black stripes
Scale markings and numerals	Matte white
Altitude tape (522-4825-004 and 522-4825-005) background color	
0 to 500 ft	Lusterless green, FED-STD-595, color no 34108
500 to 2500 ft	Blue, Munsel, color no 6B6, 7016.3
Above 2500 ft	Black
Ground symbol, below 0 ft	Alternate yellow, FED-STD-595, color no 33538, and black stripes
Scale markings and numerals	Matte white
Aircraft reference symbol	
522-4825-002, 522-4825-004, 522-4825-006, 522-4825-007, and 522-4825-008	Day-Glo arc yellow
522-4825-005	Day-Glo saturn yellow
Warning flag	
522-4825-002 and 522-4825-008	Fluorescent red, Switzer Bros. paint, no 209-13
522-4825-004, 522-4825-005, 522-4825-006, and 522-4825-007	Day-Glo fire orange, Switzer Bros.
Decision height (DH) indicator	Black with amber lettering
Decision height set numerals	Matte white on lusterless black background

Equipment Specifications
Figure 3 (Sheet 3)

CHARACTERISTIC	SPECIFICATION
Decision height index	
522-4825-002, 522-4825-004, 522-4825-006, 522-4825-007, and 522-4825-008	Yellow, FED-STD-595, color no 33538
522-4825-005	Orange, FED-STD-595, color no 32246
Decision height counter masks	
Above 499 ft	Black
Below 0 ft	Matte white stripes on lusterless black
DH selection range	0 to 499 feet
Environmental specifications	
Temperature	
Continuous operation	-15 to +71 °C (+5 to +160 °F)
Storage	-65 to +71 °C (-85 to +160 °F)
Altitude	50,000 feet. Not damaged by absolute pressures equivalent to 50 inches of mercury
Vibration	
5 to 17 Hz	0.10-inch double amplitude displacement
17 to 55 Hz	±1.5-g maximum acceleration
55 to 2000 Hz	±0.25-g maximum acceleration
Humidity, relative	95% maximum at +71 °C (+158.8 °F)
Cooling	Convection
Magnetic effect	5-degree maximum deflection of 1-1/2-inch bar magnet at a distance of 12 inches

Equipment Specifications
Figure 3 (Sheet 4)

CHARACTERISTICS	SPECIFICATION
Electrical specifications	
Power requirements from 860F-1 Radio Altimeter	
Primary power	26 V ac ±15%, 400 ±20 Hz, 18 VA maximum
+30-V dc reference	
522-4825-002, 522-4825-004, 522-4825-006, 522-4825-007, and 522-4825-008	+29.97 to +30.03 V dc, 80 mA maximum
522-4825-005	+29.97 to +30.03 V dc, 90 mA maximum
-30-V dc reference	
522-4825-002, 522-4825-004, 522-4825-006, 522-4825-007, and 522-4825-008	-29.97 to -30.03 V dc, 60 mA maximum
522-4825-005	-29.97 to -30.03 V dc, 85 mA maximum
Flag voltage	+18.5 to +30 V dc
Power requirements from aircraft bus	
Indicator lighting	5 V ac to dc, 1 A maximum
DH lighting	
522-4825-002	5 V ac or dc, 0.25 A maximum
522-4825-004, 522-4825-005, and 522-4825-008	28 V ac or dc, 55 mA maximum
DH lighting, 522-4825-006 and 522-4825-007 only from 339H-2 through interconnect wiring	26 V ac
Altitude signal input	1-kilohm minimum input impedance, 35 volts maximum
Outputs	
Maintenance monitor	+12 to +16 V dc
External DH control	Dependent on aircraft interconnect wiring
DH trip output	Dependent on aircraft interconnect wiring

Equipment Specifications
Figure 3 (Sheet 5)

CHARACTERISTICS	SPECIFICATION
Pre-DH alert	Dependent on aircraft interconnect wiring
Audio warn	
522-4825-002, 522-4825-004, 522-4825-005, and 522-4825-008	1000 ±125 Hz, 100 ±20 mW
522-4825-006 and 522-4825-007	400 ±60 to 800 ±120 Hz, 0.5 mW ±1 dB at 400 Hz to 50 mW ±1 dB at 800 Hz
500-foot alert (522-4825-005 only)	1000 ±160 Hz for 2 ±0.75 seconds
Functional (self) test (522-4825-002, 522-4825-006, 522-4825-007, and 522-4825-008)	Provides self-test circuit ground path and initiates self-test function

Equipment Specifications
Figure 3 (Sheet 6)

4. Equipment Description

A. Mechanical Description

The 339H-2 Radio Altitude Indicator is enclosed in a tape-sealed, 1-piece case (dust cover). All electrical connections are made through an MS3112E-18-32-PX connector on the rear of the indicator.

The indicator consists of two major subassemblies, the mechanical subassembly and the electronic subassembly. (Refer to IPL fig 2.)

The mechanical subassembly consists of the components requiring mechanical linkage for operation. The electronic subassembly consists of electronic components mounted on a chassis rear cover and two terminal boards, TB1 and TB2 (A2 and A1, respectively, on CPN 522-4825-006). Nine encapsulated modules are used in the indicator.

B. Electrical Description

All power and signal requirements, except the lighting power, are received from the 860F-1 Radio Altimeter. The lighting power is received from the aircraft bus.

The 26-volt ac primary power is converted to the internal power required by the indicator. On 522-4825-006, the 26-volt ac primary power also is applied to rear connector pin J1-h for use as DH lighting power.

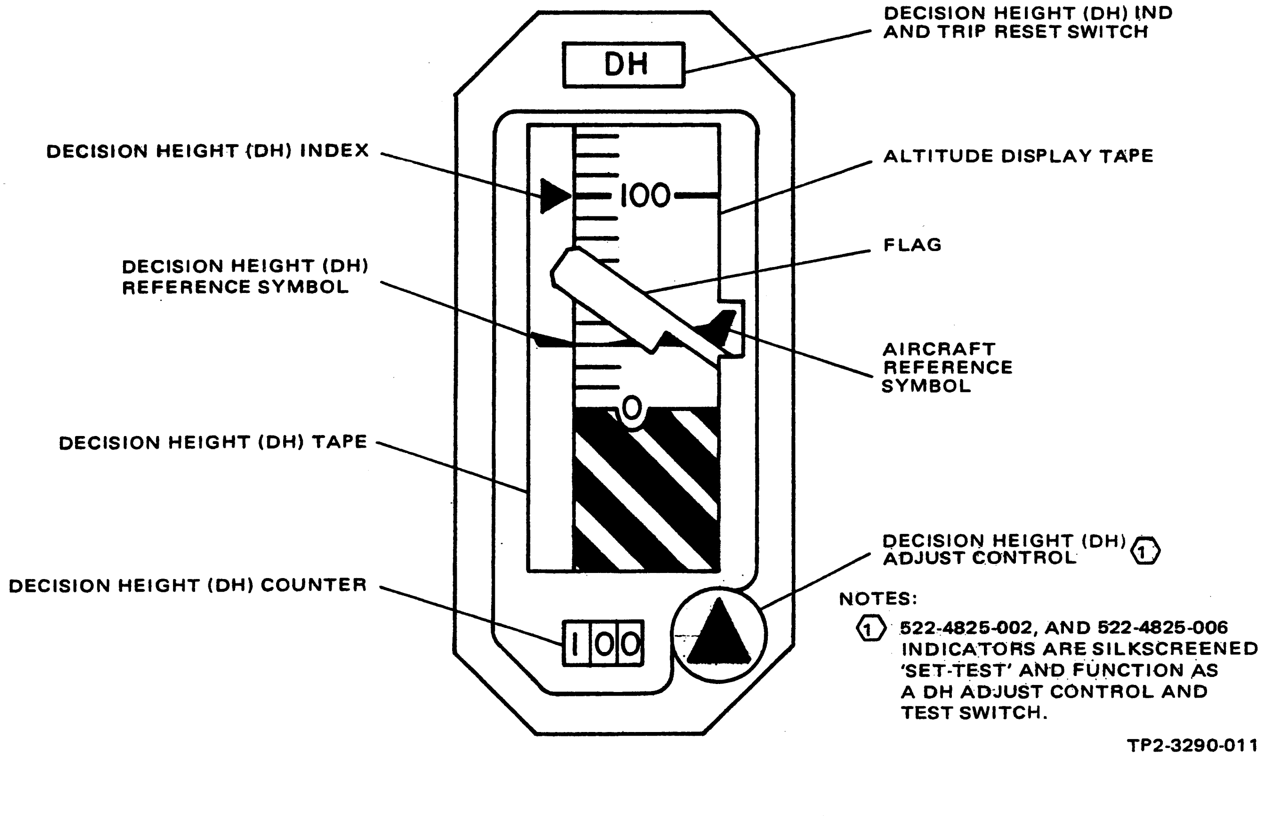
The indicator converts the electrical information received from the 860F-1 to visual information that is displayed by the mechanical assembly.

The indicator also provides a pre-DH alert output, external DH control output, DH trip output, maintenance monitor output, and audio warn output. The pre-DH alert, external DH control, and DH trip outputs can be used to control external annunciators or indicators. The audio warn output is used externally to provide a warning during descent from 50 feet above the decision height down to the decision height. The maintenance monitor output is returned to the 860F-1 indicating that the indicator is working correctly.

On indicators with CPN 522-4825-005, the indicator provides a 500-foot alert audio output. When the selected decision height is below 425 feet, a 2-second audio signal alerts the pilot at 500 feet.

C. Controls and Indicators

Figure 4 illustrates the controls and indicators on the 339H-2 Radio Altitude Indicator. Figure 5 lists the controls and indicators and describes their functions.


DECISION HEIGHT (DH) IND AND TRIP RESET SWITCH
DH
DECISION HEIGHT (DH) INDEX
ALTITUDE DISPLAY TAPE
100
FLAG
DECISION HEIGHT (DH) REFERENCE SYMBOL
AIRCRAFT REFERENCE SYMBOL
0
DECISION HEIGHT (DH) TAPE
DECISION HEIGHT (DH) ADJUST CONTROL ⟨1⟩
DECISION HEIGHT (DH) COUNTER
100
NOTES:
⟨1⟩ 522-4825-002, AND 522-4825-006 INDICATORS ARE SILKSCREENED 'SET-TEST' AND FUNCTION AS A DH ADJUST CONTROL AND TEST SWITCH.
TP2-3290-011

Controls and Indicators, Typical
Figure 4

CONTROL/INDICATOR	FUNCTION
DH (decision height) indicator and trip reset switch	Lights when decision height is reached and at altitudes under decision height. On all indicators, except CPN 522-4825-005, the indicator lights when altitude trip input is received from 860F-1 Radio Altimeter. When depressed, turns off DH indicator.
Altitude tape and aircraft reference symbol	Indicates aircraft altitude above terrain.
SET-TEST (decision height adjust control and self-test switch) control (522-4825-002 and 522-4825-006)	Adjusts DH index and DH counter to selected decision altitude. When depressed, initiates self-test of AL-101/101A Radio Altimeter System, excluding antennas.
Decision height control (522-4825-004 and 522-4825-005)	Adjusts DH index and DH counter to selected decision altitude.
Flag	When in view, indicates malfunction in AL-101/101A Radio Altimeter System.
Decision height counter	Provides digital readout of selected decision height.
Decision height tape and decision height index	Tape positions index to indicate selected decision height on altitude tape.
Decision height reference symbol	Provides reference point for decision height index to indicate aircraft is above or below decision height.

Control and Indicator Functions
Figure 5

5. Theory of Operation

A. General

The theory of operation is presented in figures 6 through 12. Paragraphs B through G provide a reference to the applicable figure and additional information.

All reference designators shown in parentheses are for indicators with CPN 522-4825-006.

B. Overall Theory of Operation

(1) General

The block diagram theory of operation is presented in figure 6. The diagram provides the overall operation of the indicator and the interconnection between the functional circuits. A detailed discussion of the overall block diagram theory of operation is presented in paragraph (2).

(2) Theory of Operation (Refer to figure 6.)

(a) Altitude Indication

A positive dc analog auxiliary output voltage (altitude voltage) that is proportional to the aircraft's altitude above the terrain is applied from the 860F-1 Radio Altimeter through J2-Y and J2-Z to the off-scale sensor circuit. The signal changes linearly from 0 to 480 feet and logarithmically above 480 feet. A flag alarm voltage is applied from the 860F-1 through J2-M to the off-scale sensor circuit. The flag alarm voltage is +28 volts dc when all circuits in the 860F-1 are operating normally. The flag alarm voltage drops to 0 volt dc when an 860F-1 circuit malfunctions.

A comparator warn signal (voltage) is applied from the 860F-1 through J2-K to the off-scale sensor circuit. The comparator warn signal is 0 volt dc when there is no difference between the two dc analog outputs of the 860F-1. If a difference by more than a predetermined amount occurs, a +2-volt dc comparator warn voltage is applied to the off-scale sensor circuit. A remote power-on (standby mode) signal is applied from the 860F-1 through J2-b to the off-scale sensor circuit. The remote power-on signal is 0 volt dc when the 860F-1 is in normal operation and +28 volts dc in standby mode.

A +30-volt dc reference voltage is applied from the 860F-1 through J2-J to the off-scale sensor circuit. The +30-volt dc is applied at all times, except in the standby mode of operation.

When all of the inputs to the off-scale sensor circuit are at the no-warn level and the 860F-1 is in normal operation, the off-scale sensor circuit applies the altitude voltage and the +30-volt dc reference voltage to the servo-loop circuit.

The servo-loop circuit is a closed servo loop. The altitude voltage is compared with a positive dc analog feedback voltage. The feedback voltage is proportional to the altitude indicated by the indicator. A difference signal is amplified and applied to the motor-generator. The phase of the difference signal controls the direction the motor drives, and the amplitude controls the amount of drive. The motor-generator is mechanically coupled to the altitude tape and to a feedback potentiometer. When the motor drives to a new position, the altitude tape is repositioned and the amount of feedback is changed.

When any one of the inputs to the off-scale sensor circuit changes to the warn level or the 860F-1 is placed in the standby mode, the off-scale sensor circuit applies an off-scale bias voltage to the servo-loop circuit. The servo-loop circuit drives the altitude tape above 2,500 feet to the off-scale position. Only the black (off-scale) area is visible on the indicator.

(b) Flag Operation

The flag control circuit receives the +30-volt dc reference voltage from J2-J, the flag alarm voltage from J2-M, the altitude or off-scale bias voltage from the off-scale sensor circuit, and the feedback voltage from the servo-loop circuit.

The flag control circuit compares the altitude or off-scale bias signal with the feedback voltage to determine if the follow potentiometer is tracking the altitude signal. If the altitude signal and the feedback voltage differ by more than a predetermined amount, the flag control circuit removes the ground applied to the flag solenoid, the ground applied to the audio warn circuit as a flag monitor voltage, and the +28-volt dc maintenance monitor voltage applied through J2-G to the 860F-1. When the ground is removed from the flag solenoid, the flag comes into view.

Loss of the +30-volt dc reference voltage, flag alarm voltage, internal 30-volt dc flag supply, internal ac flag supply, or -30-volt dc reference voltage causes the flag control circuit to produce a warn condition.

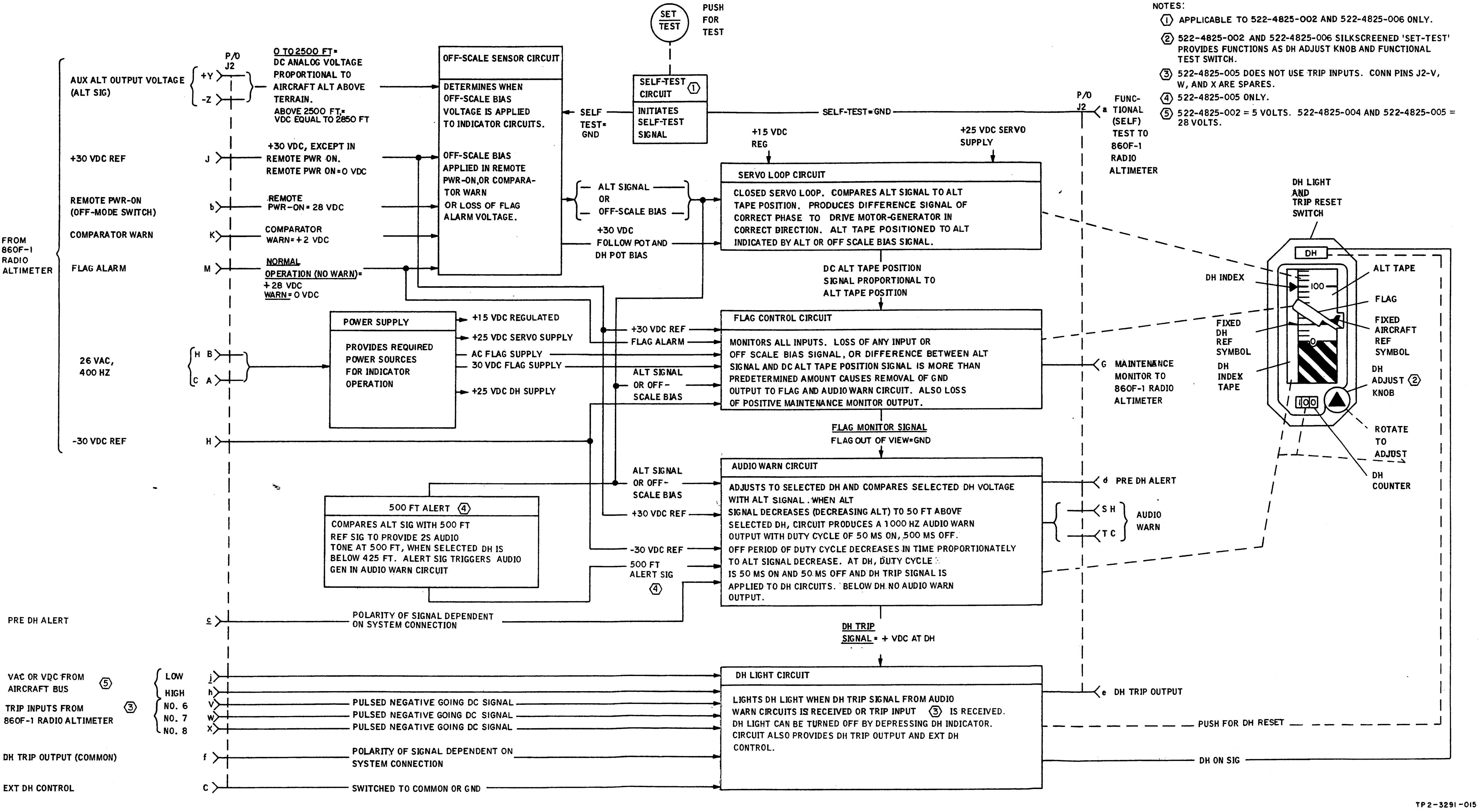
(c) Audio Warn Operation

The altitude or off-scale bias voltage is applied from the off-scale sensor circuit to the audio warn circuit. The flag monitor signal is applied from the flag control circuit to the audio warn circuit. A ground flag monitor signal indicates a no warn condition.

The pilot adjusts the decision height (DH) adjust knob to select a decision height. Any altitude between 0 and 500 feet may be selected and is read on the DH counter.

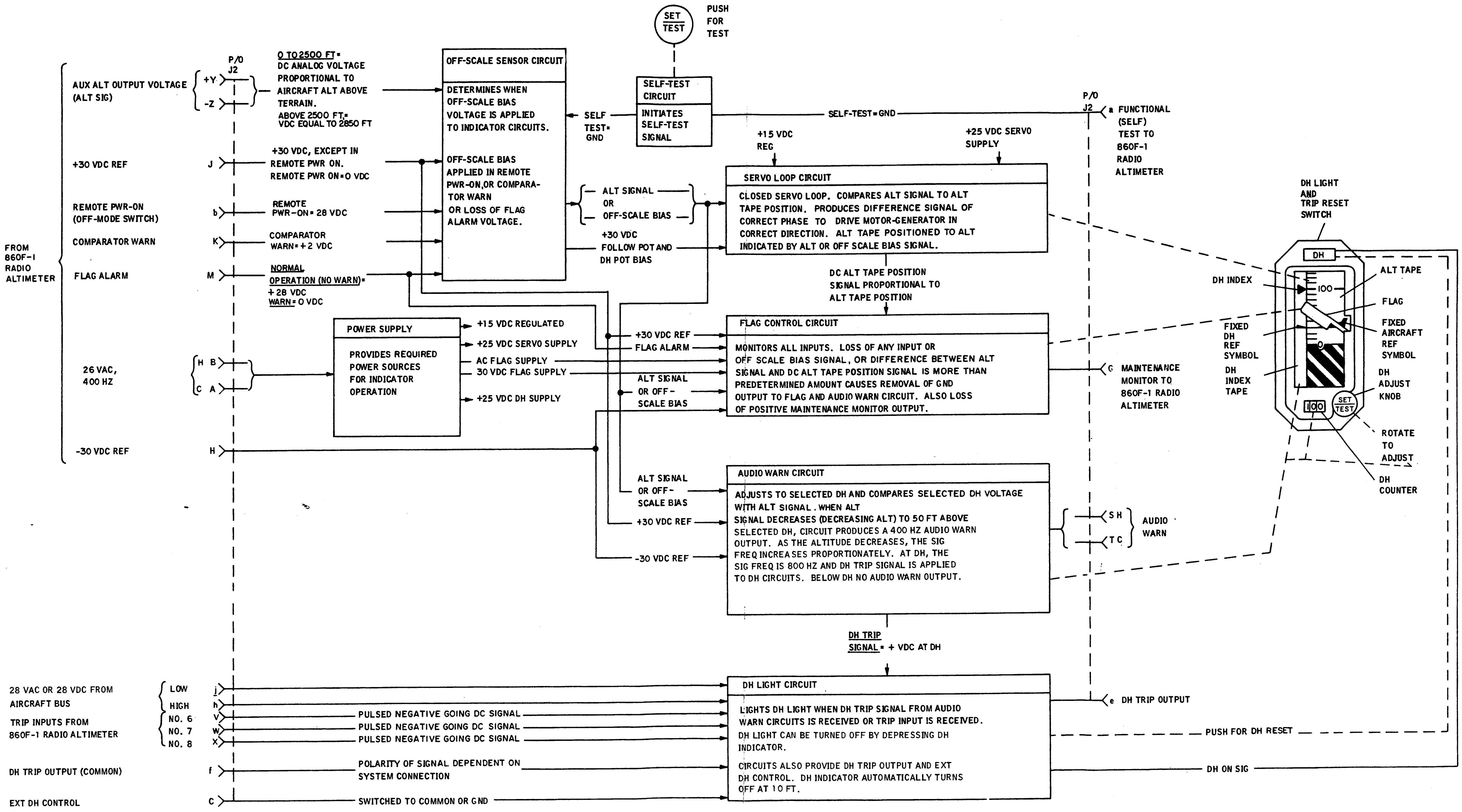
The altitude signal is compared with a decision height reference signal in the audio warn circuit. At DH +50 feet, an audio warn signal is produced and applied from the audio warn circuit to an external audio system. The audio warn signal continues until the decision height is reached. At the decision height, the audio warn signal turns off and the DH indicator lights.

On indicators with CPN 522-4825-002, 522-4825-004, and 522-4825-005, a pulsating 1000-Hz audio signal is applied through J2-S and T to the external audio system. The initial 1000-Hz audio warn signal, at DH +50 feet, is on for 50 milliseconds and off for 500 milliseconds. As the altitude decreases to the decision height, the time that the signal is off decreases proportionately. At the decision height, the audio warn signal is on for 50 milliseconds and off for 50 milliseconds just before the signal is turned off. A DH tape signal is applied to the DH light circuit at the decision height simultaneously with the audio warn signal turnoff.


SET TEST
PUSH FOR TEST
FROM 860F-1 RADIO ALTIMETER
P/O J2
AUX ALT OUTPUT VOLTAGE (ALT SIG)
+Y
-Z
0 TO 2500 FT= DC ANALOG VOLTAGE PROPORTIONAL TO AIRCRAFT ALT ABOVE TERRAIN.
ABOVE 2500 FT= VDC EQUAL TO 2850 FT
+30 VDC REF
J
+30 VDC, EXCEPT IN REMOTE PWR ON. REMOTE PWR ON=0 VDC
REMOTE PWR-ON (OFF-MODE SWITCH)
b
REMOTE PWR-ON= 28 VDC
COMPARATOR WARN
K
COMPARATOR WARN= +2 VDC
FLAG ALARM
M
NORMAL OPERATION (NO WARN)= +28 VDC WARN= 0 VDC
26 VAC, 400 HZ
H B
C A
-30 VDC REF
H
OFF-SCALE SENSOR CIRCUIT
DETERMINES WHEN OFF-SCALE BIAS VOLTAGE IS APPLIED TO INDICATOR CIRCUITS.
OFF-SCALE BIAS APPLIED IN REMOTE PWR-ON,OR COMPARATOR WARN OR LOSS OF FLAG ALARM VOLTAGE.
SELF TEST= GND
SELF-TEST CIRCUIT ①
INITIATES SELF-TEST SIGNAL
SELF-TEST=GND
P/O J2
a
FUNCTIONAL (SELF) TEST TO 860F-1 RADIO ALTIMETER
+15 VDC REG
+25 VDC SERVO SUPPLY
ALT SIGNAL OR OFF-SCALE BIAS
+30 VDC FOLLOW POT AND DH POT BIAS
SERVO LOOP CIRCUIT
CLOSED SERVO LOOP. COMPARES ALT SIGNAL TO ALT TAPE POSITION. PRODUCES DIFFERENCE SIGNAL OF CORRECT PHASE TO DRIVE MOTOR-GENERATOR IN CORRECT DIRECTION. ALT TAPE POSITIONED TO ALT INDICATED BY ALT OR OFF SCALE BIAS SIGNAL.
DC ALT TAPE POSITION SIGNAL PROPORTIONAL TO ALT TAPE POSITION
POWER SUPPLY
PROVIDES REQUIRED POWER SOURCES FOR INDICATOR OPERATION
+15 VDC REGULATED
+25 VDC SERVO SUPPLY
AC FLAG SUPPLY
30 VDC FLAG SUPPLY
+25 VDC DH SUPPLY
+30 VDC REF
FLAG ALARM
ALT SIGNAL OR OFF-SCALE BIAS
FLAG CONTROL CIRCUIT
MONITORS ALL INPUTS. LOSS OF ANY INPUT OR OFF SCALE BIAS SIGNAL, OR DIFFERENCE BETWEEN ALT SIGNAL AND DC ALT TAPE POSITION SIGNAL IS MORE THAN PREDETERMINED AMOUNT CAUSES REMOVAL OF GND OUTPUT TO FLAG AND AUDIO WARN CIRCUIT. ALSO LOSS OF POSITIVE MAINTENANCE MONITOR OUTPUT.
G
MAINTENANCE MONITOR TO 860F-1 RADIO ALTIMETER
FLAG MONITOR SIGNAL
FLAG OUT OF VIEW=GND
500 FT ALERT ④
COMPARES ALT SIG WITH 500 FT REF SIG TO PROVIDE 2S AUDIO TONE AT 500 FT, WHEN SELECTED DH IS BELOW 425 FT. ALERT SIG TRIGGERS AUDIO GEN IN AUDIO WARN CIRCUIT
ALT SIGNAL OR OFF-SCALE BIAS
+30 VDC REF
-30 VDC REF
500 FT ALERT SIG ④
AUDIO WARN CIRCUIT
ADJUSTS TO SELECTED DH AND COMPARES SELECTED DH VOLTAGE WITH ALT SIGNAL. WHEN ALT SIGNAL DECREASES (DECREASING ALT) TO 50 FT ABOVE SELECTED DH, CIRCUIT PRODUCES A 1000 HZ AUDIO WARN OUTPUT WITH DUTY CYCLE OF 50 MS ON, 500 MS OFF. OFF PERIOD OF DUTY CYCLE DECREASES IN TIME PROPORTIONATELY TO ALT SIGNAL DECREASE. AT DH, DUTY CYCLE IS 50 MS ON AND 50 MS OFF AND DH TRIP SIGNAL IS APPLIED TO DH CIRCUITS. BELOW DH NO AUDIO WARN OUTPUT.
d
PRE DH ALERT
S H
T C
AUDIO WARN
PRE DH ALERT
c
POLARITY OF SIGNAL DEPENDENT ON SYSTEM CONNECTION
DH TRIP SIGNAL= + VDC AT DH
VAC OR VDC FROM AIRCRAFT BUS ⑤
TRIP INPUTS FROM 860F-1 RADIO ALTIMETER ③
LOW
HIGH
NO. 6
NO. 7
NO. 8
j
h
V
W
X
PULSED NEGATIVE GOING DC SIGNAL
PULSED NEGATIVE GOING DC SIGNAL
PULSED NEGATIVE GOING DC SIGNAL
DH TRIP OUTPUT (COMMON)
f
POLARITY OF SIGNAL DEPENDENT ON SYSTEM CONNECTION
EXT DH CONTROL
C
SWITCHED TO COMMON OR GND
DH LIGHT CIRCUIT
LIGHTS DH LIGHT WHEN DH TRIP SIGNAL FROM AUDIO WARN CIRCUITS IS RECEIVED OR TRIP INPUT ③ IS RECEIVED. DH LIGHT CAN BE TURNED OFF BY DEPRESSING DH INDICATOR. CIRCUIT ALSO PROVIDES DH TRIP OUTPUT AND EXT DH CONTROL.
e
DH TRIP OUTPUT
PUSH FOR DH RESET
DH ON SIG
DH LIGHT AND TRIP RESET SWITCH
DH
DH INDEX
100
0
ALT TAPE
FLAG
FIXED AIRCRAFT REF SYMBOL
FIXED DH REF SYMBOL
DH INDEX TAPE
DH ADJUST ② KNOB
100
ROTATE TO ADJUST
DH COUNTER
TP2-3291-015

NOTES:
① APPLICABLE TO 522-4825-002 AND 522-4825-006 ONLY.
② 522-4825-002 AND 522-4825-006 SILKSCREENED 'SET-TEST' PROVIDES FUNCTIONS AS DH ADJUST KNOB AND FUNCTIONAL TEST SWITCH.
③ 522-4825-005 DOES NOT USE TRIP INPUTS. CONN PINS J2-V, W, AND X ARE SPARES.
④ 522-4825-005 ONLY.
⑤ 522-4825-002 = 5 VOLTS. 522-4825-004 AND 522-4825-005 = 28 VOLTS.

339H-2 Radio Altitude Indicator, CPN 522-4825-002, 522-4825-004, and 522-4825-005, Functional Diagram
Figure 6


PUSH FOR TEST
SET TEST
SELF-TEST CIRCUIT
INITIATES SELF-TEST SIGNAL
SELF TEST= GND
SELF-TEST=GND
P/O J2
a FUNCTIONAL (SELF) TEST TO 860F-1 RADIO ALTIMETER
FROM 860F-1 RADIO ALTIMETER
AUX ALT OUTPUT VOLTAGE (ALT SIG)
+Y
-Z
0 TO 2500 FT= DC ANALOG VOLTAGE PROPORTIONAL TO AIRCRAFT ALT ABOVE TERRAIN.
ABOVE 2500 FT= VDC EQUAL TO 2850 FT
+30 VDC REF
J
+30 VDC, EXCEPT IN REMOTE PWR ON. REMOTE PWR ON=0 VDC
REMOTE PWR-ON (OFF-MODE SWITCH)
b
REMOTE PWR-ON= 28 VDC
COMPARATOR WARN
K
COMPARATOR WARN= +2 VDC
FLAG ALARM
M
NORMAL OPERATION (NO WARN)= +28 VDC
WARN= 0 VDC
OFF-SCALE SENSOR CIRCUIT
DETERMINES WHEN OFF-SCALE BIAS VOLTAGE IS APPLIED TO INDICATOR CIRCUITS.
OFF-SCALE BIAS APPLIED IN REMOTE PWR-ON, OR COMPARATOR WARN OR LOSS OF FLAG ALARM VOLTAGE.
ALT SIGNAL OR OFF-SCALE BIAS
+30 VDC FOLLOW POT AND DH POT BIAS
+15 VDC REG
+25 VDC SERVO SUPPLY
SERVO LOOP CIRCUIT
CLOSED SERVO LOOP. COMPARES ALT SIGNAL TO ALT TAPE POSITION. PRODUCES DIFFERENCE SIGNAL OF CORRECT PHASE TO DRIVE MOTOR-GENERATOR IN CORRECT DIRECTION. ALT TAPE POSITIONED TO ALT INDICATED BY ALT OR OFF SCALE BIAS SIGNAL.
DC ALT TAPE POSITION SIGNAL PROPORTIONAL TO ALT TAPE POSITION
26 VAC, 400 HZ
H B
C A
POWER SUPPLY
PROVIDES REQUIRED POWER SOURCES FOR INDICATOR OPERATION
+15 VDC REGULATED
+25 VDC SERVO SUPPLY
AC FLAG SUPPLY
30 VDC FLAG SUPPLY
+25 VDC DH SUPPLY
+30 VDC REF
FLAG ALARM
ALT SIGNAL OR OFF-SCALE BIAS
FLAG CONTROL CIRCUIT
MONITORS ALL INPUTS. LOSS OF ANY INPUT OR OFF SCALE BIAS SIGNAL, OR DIFFERENCE BETWEEN ALT SIGNAL AND DC ALT TAPE POSITION SIGNAL IS MORE THAN PREDETERMINED AMOUNT CAUSES REMOVAL OF GND OUTPUT TO FLAG AND AUDIO WARN CIRCUIT. ALSO LOSS OF POSITIVE MAINTENANCE MONITOR OUTPUT.
G MAINTENANCE MONITOR TO 860F-1 RADIO ALTIMETER
-30 VDC REF
H
ALT SIGNAL OR OFF-SCALE BIAS
+30 VDC REF
-30 VDC REF
AUDIO WARN CIRCUIT
ADJUSTS TO SELECTED DH AND COMPARES SELECTED DH VOLTAGE WITH ALT SIGNAL. WHEN ALT SIGNAL DECREASES (DECREASING ALT) TO 50 FT ABOVE SELECTED DH, CIRCUIT PRODUCES A 400 HZ AUDIO WARN OUTPUT. AS THE ALTITUDE DECREASES, THE SIG FREQ INCREASES PROPORTIONATELY. AT DH, THE SIG FREQ IS 800 HZ AND DH TRIP SIGNAL IS APPLIED TO DH CIRCUITS. BELOW DH NO AUDIO WARN OUTPUT.
S H
T C
AUDIO WARN
DH TRIP SIGNAL= + VDC AT DH
28 VAC OR 28 VDC FROM AIRCRAFT BUS
LOW j
HIGH h
TRIP INPUTS FROM 860F-1 RADIO ALTIMETER
NO. 6 V
NO. 7 W
NO. 8 X
PULSED NEGATIVE GOING DC SIGNAL
PULSED NEGATIVE GOING DC SIGNAL
PULSED NEGATIVE GOING DC SIGNAL
DH TRIP OUTPUT (COMMON)
f
POLARITY OF SIGNAL DEPENDENT ON SYSTEM CONNECTION
EXT DH CONTROL
c
SWITCHED TO COMMON OR GND
DH LIGHT CIRCUIT
LIGHTS DH LIGHT WHEN DH TRIP SIGNAL FROM AUDIO WARN CIRCUITS IS RECEIVED OR TRIP INPUT IS RECEIVED.
DH LIGHT CAN BE TURNED OFF BY DEPRESSING DH INDICATOR.
CIRCUITS ALSO PROVIDE DH TRIP OUTPUT AND EXT DH CONTROL. DH INDICATOR AUTOMATICALLY TURNS OFF AT 10 FT.
e DH TRIP OUTPUT
PUSH FOR DH RESET
DH ON SIG
DH LIGHT AND TRIP RESET SWITCH
DH
DH INDEX
ALT TAPE
100
FLAG
FIXED DH REF SYMBOL
FIXED AIRCRAFT REF SYMBOL
0
DH INDEX TAPE
DH ADJUST KNOB
SET TEST
100
ROTATE TO ADJUST
DH COUNTER

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339H-2 Radio Altitude Indicator, CPN
522-4825-006, Functional Diagram
Figure 6A

If the altitude is increased after the audio warn signal is initiated at DH +50 feet, an altitude of DH +60 feet must be attained before the audio warn circuit resets (audio warn signal turns off). The audio warn signal is initiated again when the altitude decreases to DH +50 feet.

After the decision height is reached, the audio warn signal is off, and the DH indicator is lit. If the altitude is increased, an altitude of DH +30 feet must be attained before the DH trip portion of the audio warn circuit resets (DH indicator turns off) and an altitude of DH +75 feet must be attained before the audio warn circuit rearms to provide an audio warn signal at DH +50 feet.

On indicators with CPN 522-4825-006, the audio warn circuit applies a continuous tone audio warn signal through J2-S and T to an external audio system. The initial audio warn signal, at DH +50 feet, is 400 Hz. As the altitude decreases toward the decision height, the signal frequency increases proportionately to the altitude decrease. At the decision height, the audio warn signal frequency is 800 Hz just before turnoff. A DH trip signal is applied to the DH light circuit simultaneously with audio warn signal turnoff at the decision height. The DH trip signal lights the DH indicator.

If the altitude is increased after the audio warn signal is initiated at DH +50 feet, an altitude of DH +60 feet must be attained before the audio warn circuit resets (audio warn signal turns off). The audio warn signal is initiated again when the altitude decreases to DH +50 feet.

After the decision height is reached, the audio warn signal is off, and the DH indicator is lit. If the altitude is increased, an altitude of DH +75 feet must be attained for the audio warn circuits to rearm (DH indicator turns off). The audio warn circuit operates normally when the altitude decreases.

On indicators with CPN 522-4825-002, 522-4825-004, and 522-4825-005, a pre-DH alert signal is applied from J2-c to J2-d simultaneously with the start of the audio warn signal at DH +50 feet.

(c)A 500-Foot Alert Operation, Indicators With CPN 522-4825-005 Only

The altitude signal is compared with a 500-foot reference voltage. When the altitude signal is proportional to an altitude of 500 feet, a 500-foot alert signal is applied to the audio warn circuit. The audio warn circuit produces a 2-second, 1000-Hz audio tone that is applied to the external audio system. If the selected decision height is above 425 feet, the 500-foot alert circuit is disabled. If the decision height is below 425 feet and the rate of descent is greater than 10 feet per second, the 2-second tone is disabled before the full two seconds expire.

(d) DH Indicator Operation

At decision height, the audio warn circuit applies a dc DH trip signal to the DH light circuit. The light circuit applies a DH on signal to the DH indicator and the indicator lights. The DH light circuit applies a ground to J2-C as an external DH control signal and applies the DH trip input from J2-f to J2-e.

On indicators with CPN 522-4825-002, 522-4825-004, and 522-4825-005, after the DH indicator lights, the altitude must be increased to DH +30 feet before the DH indicator turns off.

On indicators with CPN 522-4825-006, after the DH indicator lights, the altitude must be increased to DH +75 feet before the DH indicator turns off.

On indicators with CPN 522-4825-002, 522-4825-004, and 522-4825-006, any one of three trip inputs from the 860F-1 Radio Altimeter lights the DH indicator. The trip signal is applied to the DH light circuit that applies a DH on signal to the DH indicator, the DH trip input at J2-f to e, and the DH light low input to J2-C. The DH indicator can be turned off after a trip input by depressing the DH indicator.

On indicators with CPN 522-4825-005, the altitude trip inputs are not used, and connector pins J2-V, W, and X are spares.

On indicators with CPN 522-4825-002 and 522-4825-004 without SB 5, the DH indicator cannot be turned off after it lights at the decision height.

On indicators with CPN 522-4825-002 and 522-4825-004 with SB 5, 522-4825-005, and 522-4825-006, the DH indicator can be turned off after it lights at the decision height by depressing the DH indicator.

On indicators with CPN 522-4825-006 (serno 1508 and below or without SB 12), the DH indicator is turned off automatically at 10 feet. The indicator turns on again when the altitude reaches 10 feet if the selected decision height is above 10 feet.

On indicators with CPN 522-4825-006 with SB 12 (or serno 1509 and above), the DH indicator is turned off automatically at 10 feet during descent. The DH indicator will remain off during takeoff. The DH indicator will turn on again during descent at DH +50 feet, but only after ascending to an altitude of more than DH +75 feet.

(e) Self-Test Operation (Indicators With CPN 522-4825-002 and 522-4825-006)

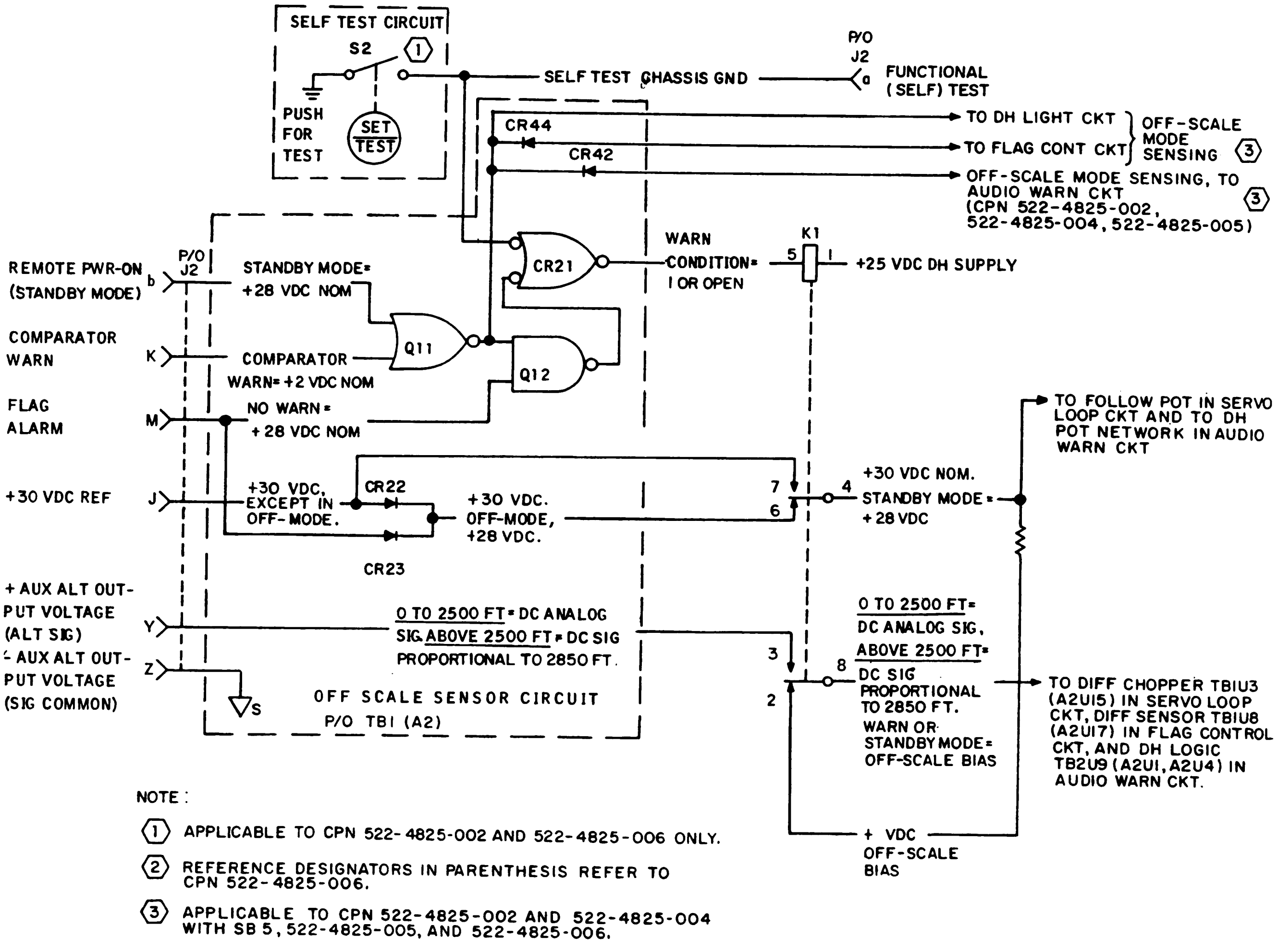
Depressing the SET/TEST knob on the indicator applies a ground through J2-a to the 860F-1. The ground initiates a functional test of the radio altimeter system, excluding antennas. The ground is applied to the off-scale sensor circuit causing the flag to come into view. During self-test the flag comes into view and the indicator displays a predetermined self-test altitude supplied by the 860F-1.

C. Off-Scale Sensor Circuit (Refer to figure 7.)

(1) 0- to 2,500-Foot Operation

(a) Normal Operation

The positive dc analog auxiliary altitude output voltage (altitude voltage) is applied from the 860F-1 to J2-Y and the negative dc analog auxiliary altitude output voltage (common) is applied to J2-Z. The altitude voltage is proportional to the aircraft's altitude above the terrain.


SELF TEST CIRCUIT
S2 ①
PUSH FOR TEST
SET TEST
SELF TEST CHASSIS GND
P/O J2
a
FUNCTIONAL (SELF) TEST
CR44
CR42
TO DH LIGHT CKT
TO FLAG CONT CKT
OFF-SCALE MODE SENSING ③
OFF-SCALE MODE SENSING, TO AUDIO WARN CKT (CPN 522-4825-002, 522-4825-004, 522-4825-005) ③
REMOTE PWR-ON (STANDBY MODE)
b
P/O J2
STANDBY MODE= +28 VDC NOM
CR21
WARN CONDITION= 1 OR OPEN
K1
5
1
+25 VDC DH SUPPLY
COMPARATOR WARN
K
COMPARATOR WARN= +2 VDC NOM
Q11
Q12
FLAG ALARM
M
NO WARN= +28 VDC NOM
+30 VDC REF
J
+30 VDC, EXCEPT IN OFF-MODE.
CR22
CR23
+30 VDC. OFF-MODE, +28 VDC.
7
6
4
+30 VDC NOM. STANDBY MODE= +28 VDC
TO FOLLOW POT IN SERVO LOOP CKT AND TO DH POT NETWORK IN AUDIO WARN CKT
+ AUX ALT OUTPUT VOLTAGE (ALT SIG)
Y
- AUX ALT OUTPUT VOLTAGE (SIG COMMON)
Z
0 TO 2500 FT= DC ANALOG SIG. ABOVE 2500 FT= DC SIG PROPORTIONAL TO 2850 FT.
S
OFF SCALE SENSOR CIRCUIT P/O TB1 (A2)
3
2
8
0 TO 2500 FT= DC ANALOG SIG, ABOVE 2500 FT= DC SIG PROPORTIONAL TO 2850 FT.
WARN OR STANDBY MODE= OFF-SCALE BIAS
TO DIFF CHOPPER TB1U3 (A2U15) IN SERVO LOOP CKT, DIFF SENSOR TB1U8 (A2U17) IN FLAG CONTROL CKT, AND DH LOGIC TB2U9 (A2U1, A2U4) IN AUDIO WARN CKT.
+ VDC OFF-SCALE BIAS

NOTE:

① APPLICABLE TO CPN 522-4825-002 AND 522-4825-006 ONLY.

② REFERENCE DESIGNATORS IN PARENTHESIS REFER TO CPN 522-4825-006.

③ APPLICABLE TO CPN 522-4825-002 AND 522-4825-004 WITH SB 5, 522-4825-005, AND 522-4825-006.

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Off-Scale Sensor and Self-Test Circuit,
Functional Diagram
Figure 7

The +30-volt dc reference voltage from the 860F-1 is applied to J2-J and the +28-volt dc flag alarm voltage (no-warn) is applied to J2-M. The remote power-on (standby mode) and comparator warn inputs are 0 volt dc.

The comparator warn and standby mode inputs are applied to NOR gate TB1Q11 (A2Q11). With both inputs at a low (0) or normal, the NOR gate applies a logic 1 (high) to NAND gate TB1Q12 (A2Q12). The +28-Vdc flag alarm input is applied to the NAND gate, and the gate is satisfied. The NAND gate applies a logic 0 (low) to OR gate TB1CR21 (A2CR21). The OR gate applies a logic 0 (low or ground) to the control coil of relay K1. Relay K1 energizes closing contacts 8 and 3, and 4 and 7.

On indicators with CPN 522-4825-002 and 522-4825-004 with SB 5, 522-4825-005, and 522-4825-006, the logic 1 (high) from NOR gate TB1Q11 (A2Q11) also is applied to the DH light circuit, TB1CR42 and TB1CR44 (A2CR44). The logic 1 reverse biases TB1CR42 and TB1CR44 (A2CR44) indicating the indicator is not in the off-scale mode.

The positive auxiliary altitude output voltage is applied through K1-3 and K1-8 to differential chopper TB1U3 (A2U15), differential sensor TB1U8 (A2U17), and DH logic TB2U9 (CPN 522-4825-002, 522-4825-004, and 522-4825-005) or comparators A1U1 and A1U4 (CPN 522-4825-006).

The +30-volt dc reference voltage is applied through K1-7 and 4 to follow potentiometer R54 in the servo-loop circuit and to DH potentiometer R11 (R53) network in the audio warn circuit.

(b) Comparator Warn Operation

A +2-volt dc comparator warn voltage is applied from the 860F-1 through J2-K to NOR gate TB1Q11 (A2Q11) indicating that the two dc analog outputs from the 860F-1 are not within a predetermined value of each other. The NOR gate is satisfied and applies a low (0) to NAND gate TB1Q12 (A2Q12). The +28-volt dc flag alarm voltage applied to the NAND gate drops to 0 volt dc due to the malfunction in the 860F-1. The NAND gate is not satisfied and applies a high (1) to OR gate TB1CR21 (A2CR21). The OR gate is not satisfied and applies a high (1 or open) to the control coil of K1. Relay K1 deenergizes and closes contacts 2 and 8, and 6 and 4.

On indicators with CPN 522-4825-002 and 522-4825-004 with SB 5, 522-5825-005, and 522-4825-006, when TB1Q11 (A2Q11) switches to a logic 0 (low), the low is applied to the DH light circuit, through TB1CR44 (A2CR44) to the flag control circuit, and through TB1CR42 to the audio warn circuits (all indicators except 522-4825-006). The low is the off-scale sensing signal that indicates the indicator is in the off-scale mode.

The +30-volt dc reference voltage is applied from J2-J through TB1CR22 (A2CR22), K1-6, K1-4, and TB1R57 (A2R57) to K1-2 as a dc off-scale bias voltage. The off-scale bias voltage is applied from K1-2 through

K1-8 to differential chopper TB1U3 (A2U15), to differential sensor TB1U8 (A2U17), and to DH logic TB2U9 (CPN 522-4825-002, 522-4825-004, and 522-4825-005) or to A1U1 and A1U4 (CPN 522-4825-006). The +30-volt dc reference voltage is applied from J2-J through K1-6 and K1-4 to follow potentiometer R54 and DH potentiometer R11 (R53) network.

(c) Flag Alarm Operation

When the 860F-1 malfunctions, the flag alarm voltage drops from +28 volts dc to 0 volt dc. The 0-volt dc is applied through J2-M to NAND gate TB1Q12 (A2Q12). The NAND gate is not satisfied, and the remainder of the off-scale sensor circuit operates the same as described in paragraph (b).

(d) Remote Power-on (Standby Mode) Operation

When the radio altimeter system is placed in the standby mode of operation, +28-volt dc remote power-on is applied from the 860F-1 through J2-b to NOR gate TB1Q11. The +30-volt dc reference voltage at J2-J drops to 0 volt dc. However, the +28-volt dc flag alarm voltage is still applied to J2-M.

NOR gate TB1Q11 (A2Q11) is satisfied and applies a low (0) to NAND gate TB1Q12 (A2Q12). The NAND gate is not satisfied and applies a high (1) to OR gate TB1CR21 (A2CR21). The OR gate is satisfied and applies a high (1 or open) to the control coil of K1. Relay K1 deenergizes closing contacts 6 and 4, and 2 and 8.

The +28-volt dc flag alarm at J2-M is applied through TB1CR23 (A2CR23) and K1-6 to K1-4. The +28-volts dc is applied from K1-4 through TB1R57 (A2R57) to K1-2 as a dc off-scale bias voltage and from K1-4 to follow potentiometer R54 and to DH potentiometer R11 (R53) network. The off-scale bias voltage at K1-2 is applied through K1-8 to differential chopper TB1U3 (A2U15) to differential sensor TB1U8 (A2U17), and DH logic TB2U9 (CPN 522-4825-002, 522-4825-004, and 522-4825-005) or A1U1 and A1U4 (CPN 522-4825-006).

(2) Above 2,500-Foot Operation

The operation of the off-scale sensor circuit is the same as described in paragraph (1), except the altitude voltage from the 860F-1 is a dc voltage that is proportional to a 2,850-foot altitude.

On indicators with CPN 522-4825-002 and 522-4825-004 with SB 5, 522-4825-005, and 522-4825-006, when NOR gate TB1Q11 (A2Q11) switches to a logic 0 (low), the low is applied to the DH light circuit, through TB1CR44 (A2CR44) to the flag control circuit, and through TB1CR44 to the audio warn circuit (all indicators except 522-4825-006). The low is the off-scale sensing signal that indicates the indicator is in the off-scale mode.

(3) Self-Test Operation (Indicators With CPN 522-4825-002 and 522-4825-006)

Depressing the SET/TEST switch on the front of the indicator applies a low (ground) to J2-a and to OR gate TB1CR21 (A2CR21). The OR gate is satisfied and applies a low (0 or ground) to the control coil of K1. Relay K1 energizes closing contacts 7 and 4, and 3 and 8. The positive dc test altitude is applied from the 860F-1 through J2-Y, K1-3, and K1-8 to differential chopper TB1U3 (A2U15), to differential sensor TB1U8 (A2U17), and to DH logic TB2U9 (CPN 522-4825-002) or A2U1 and A2U4 (CPN 522-4825-006). The +30-volt dc reference voltage at J2-J is applied through K1-7 and K1-4 to follow potentiometer R54 and to DH potentiometer R11 (R53) network.

D. Servo-Loop Circuit Operation (Refer to figure 8.)

(1) 0- to 2,500-Foot Operation

The altitude voltage, proportional to the aircraft's altitude above the terrain, is applied from the off-scale sensor circuit to differential chopper TB1U3 (A2U15). A positive dc feedback voltage, proportional to the altitude indicated on the indicator, is applied to TB1U3 (A2U15). The 26-volt ac, 400-Hz primary power at J2-A and J2-B is applied as a control to TB1U3 (A2U15).

When the altitude voltage and the feedback voltage are equal, the differential chopper applies no output to the succeeding circuits.

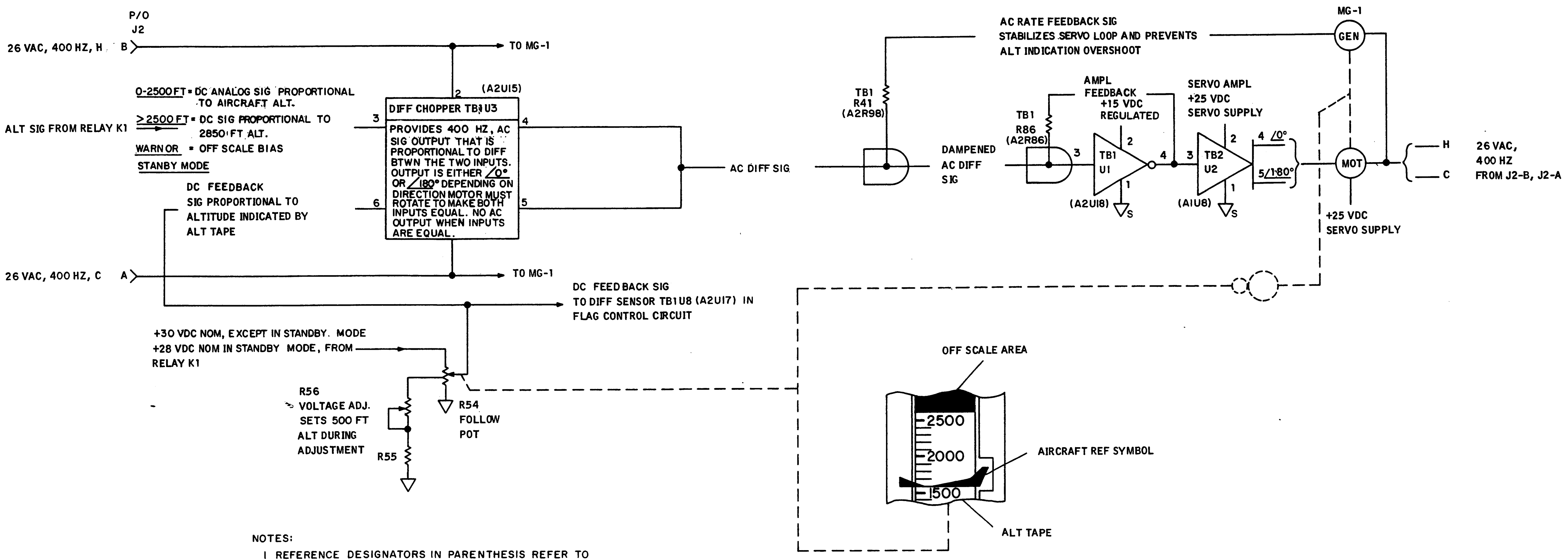
When either the altitude voltage exceeds the feedback voltage indicating increasing altitude or the feedback voltage exceeds the altitude voltage indicating decreasing altitude, the differential chopper applies a 400-Hz ac altitude difference voltage to a mixing point with the ac rate feedback. A 0-degree output is applied to the mixing point with increasing altitude, and a 180-degree output is applied during decreasing altitude.

The ac altitude difference voltage is dampened by the ac rate feedback voltage at the mixing point. The ac rate feedback voltage is proportional to the speed at which the motor-generator is driven. The feedback voltage dampens the altitude difference signal to provide servo-loop stabilization and prevent overshoot of the altitude indication. The dampened ac difference voltage is applied to amplifier TB1U1 (A2U18).

The amplified output of TB1U1 (A2U18) is applied to servo amplifier TB2U2 (A1U8) and also fed back to the input of TB1U1 (A2U18) to provide amplifier stabilization.

Servo amplifier TB2U2 (A1U8) amplifies the difference voltage and applies either a 0-degree or 180-degree ac voltage to the motor of MG1.

Motor-generator MG1 is driven by the output of TB2U2 (A1U8). The direction of rotation is determined by the phase of the output from the servo amplifier. The amount of drive is determined from the amplitude of the output. A gear train mechanically couples MG1 to the altitude tape and to the wiper of


P/O
J2
26 VAC, 400 HZ, H B
TO MG-1
0-2500 FT = DC ANALOG SIG PROPORTIONAL TO AIRCRAFT ALT.
ALT SIG FROM RELAY K1
>2500 FT = DC SIG PROPORTIONAL TO 2850 FT ALT.
WARN OR STANBY MODE = OFF SCALE BIAS
DC FEEDBACK SIG PROPORTIONAL TO ALTITUDE INDICATED BY ALT TAPE
2
(A2U15)
3
DIFF CHOPPER TB1U3
4
PROVIDES 400 HZ, AC SIG OUTPUT THAT IS PROPORTIONAL TO DIFF BTWN THE TWO INPUTS. OUTPUT IS EITHER /0° OR /180° DEPENDING ON DIRECTION MOTOR MUST ROTATE TO MAKE BOTH INPUTS EQUAL. NO AC OUTPUT WHEN INPUTS ARE EQUAL.
6
5
AC DIFF SIG
26 VAC, 400 HZ, C A
TO MG-1
DC FEEDBACK SIG TO DIFF SENSOR TB1U8 (A2U17) IN FLAG CONTROL CIRCUIT
+30 VDC NOM, EXCEPT IN STANDBY MODE
+28 VDC NOM IN STANDBY MODE, FROM RELAY K1
R56
VOLTAGE ADJ. SETS 500 FT ALT DURING ADJUSTMENT
R55
R54
FOLLOW POT
AC RATE FEEDBACK SIG STABILIZES SERVO LOOP AND PREVENTS ALT INDICATION OVERSHOOT
MG-1
GEN
TB1
R41
(A2R98)
AMPL FEEDBACK
+15 VDC REGULATED
SERVO AMPL
+25 VDC SERVO SUPPLY
TB1
R86
(A2R86)
DAMPENED AC DIFF SIG
3
TB1
U1
2
4
1
(A2U18)
S
3
TB2
U2
2
1
(A1U8)
S
4 /0°
5 /180°
MOT
H
C
26 VAC, 400 HZ FROM J2-B, J2-A
+25 VDC SERVO SUPPLY
OFF SCALE AREA
2500
2000
1500
AIRCRAFT REF SYMBOL
ALT TAPE
TP2-3293-014

NOTES:
1 REFERENCE DESIGNATORS IN PARENTHESIS REFER TO CPN 522-4825-006.

Servo-Loop Circuit, Functional Diagram
Figure 8

feedback potentiometer R54. As MG1 drives, the altitude tape is repositioned, the wiper of feedback potentiometer R54 is repositioned, and an ac rate feedback is applied from the generator to a mixing point with the ac altitude difference signal from differential chopper TB1U3 (A1U15). The repositioning of the wiper of R54 changes the feedback voltage to a level that is proportional to the new altitude indicated by the indicator.

When a warn occurs in the 860F-1 or the radio altimeter system is placed in the standby mode, the altitude voltage is replaced by an off-scale bias voltage from the off-scale sensor circuit. The off-scale bias voltage drives the altitude tape to the off-scale (black area above 2,500 feet) position.

(2) Above 2,500-Foot Operation

The operation of the servo-loop circuit is the same as described in paragraph (1) except the altitude voltage is replaced by a dc voltage that is proportional to a 2,850-foot altitude. The altitude tape is driven to the off-scale position.

E. Flag Control Circuit Operation (Refer to figure 9.)

The positive dc altitude voltage from the off-scale sensor circuit and the positive dc feedback voltage from the servo-loop circuit are applied to differential sensor TB1U8 (A2U17). The differential sensor compares the two inputs for a difference of more than 500 millivolts. When the difference is less than 500 millivolts, the feedback potentiometer is tracking the altitude voltage normally and a low (0) is applied to monitor output TB2U6 (A1U7). If the difference exceeds 500 millivolts, the follow potentiometer is not tracking the altitude voltage correctly and TB1U8 (A2U17) applies a high (1) to TB2U6 (A1U7), indicating a warn condition.

With a no warn (1) from TB1U8 (A2U17) and the +30-volt dc flag supply from the power supply applied to the servo loop and flag supply monitor AND gate, the AND gate is satisfied and applies a high (1) to the ac flag supply monitor AND gate. With the ac flag supply from the power supply applied to TB2U6 (A1U7), the ac flag supply monitor AND gate is satisfied and applies a low (0) to the output AND gate. With the +30-volt dc reference voltage or +28-volt dc flag alarm voltage in standby mode from the off-scale sensor circuit and the -30-volt dc reference voltage from J2-H applied to TB2U6 (A1U7), the 30-volt dc reference monitor AND gate is satisfied. The AND gate applies a high (1) to the inverting amplifier. The inverted output (low or ground) is applied to flag solenoid L1, to TB2Q5 in the audio warn circuit as a flag monitor signal (CPN 522-4825-002, 522-4825-004, and 522-4825-005), to the instrument monitor AND gate and to the 500-foot alert circuit (CPN 522-4825-005 only). The +28-volt dc flag alarm voltage, indicating a no warn condition, is applied from J2-M to TB2U6 (A1U7) and to flag solenoid L1. The flag solenoid is energized, and the flag is biased out of view on the indicator display. The +28-volt dc flag alarm applied to the instrument monitor AND gate satisfies the gate, and a high (+28 volts dc) is applied to J2-G as a maintenance monitor voltage. The +28-volt dc maintenance monitor voltage indicates that the indicator is operating correctly.

If any of the inputs to TB2U6 (A2U7) are lost or change to a warn condition, the ground applied as a flag monitor signal is removed. Loss of the ground to flag solenoid L1 deenergizes the coil and the flag drops into view on the indicator display. Loss of the ground to TB2Q5 turns off the audio warn circuit (CPN 522-4825-002, 522-4825-004, and 522-4825-005), loss of the ground to instrument monitor output AND gate drops the maintenance monitor output at J2-G to less than +1 volt dc, indicating a malfunction in the indicator, and loss of ground to the 500-foot alert circuit disables the circuit (CPN 522-4825-005 only).

If the +28-volt dc flag alarm voltage drops to 0 volt dc, indicating a warn condition from the 860F-1, the flag solenoid deenergizes, the flag comes into view, and the maintenance monitor output drops to less than +1 volt dc. Loss of the flag alarm drives the altitude tape to the off-scale position and the audio warn circuit is, in effect, inoperative.

F. Audio Warn Circuit Operation, Indicators With CPN 522-4825-002, 522-4825-004, and 522-4825-005 (Refer to figures 10 and 11.)

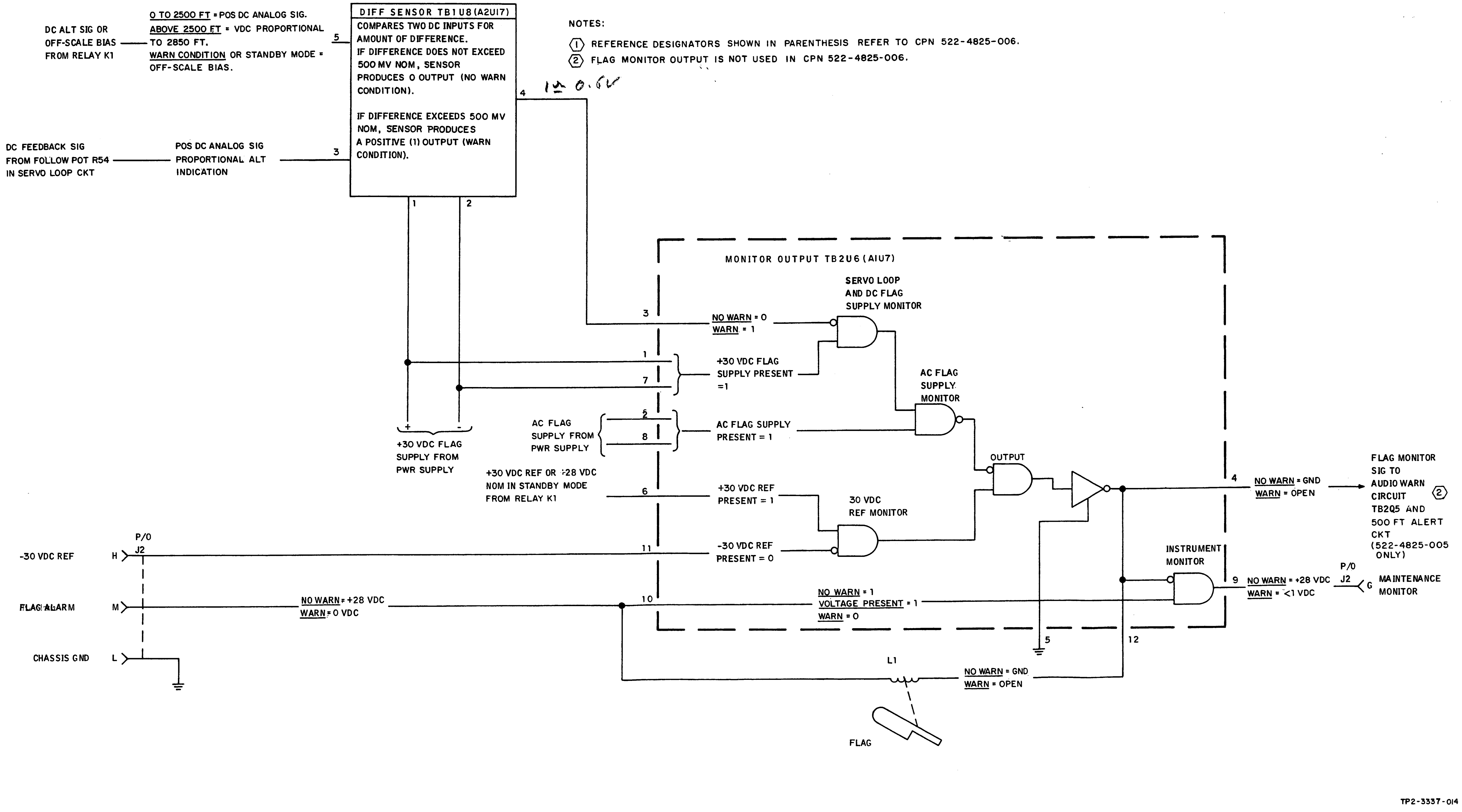
(1) General

An audio warn signal output begins when the aircraft descends to DH +50 feet and continues until the aircraft reaches the decision height. The output is a 1-kHz audio tone that is on 50 milliseconds and off 500 milliseconds at DH +50 feet. The off period decreases proportionately to the decrease in aircraft altitude between DH +50 feet and the decision height. At the decision height, just before audio warn turnoff, the audio tone is on for 50 milliseconds and off for 50 milliseconds. The audio warn tone turns off at the decision height, and the DH indicator lights.

If the aircraft must climb out from between DH +50 feet and the decision height while the audio warn output is present, the off period increases as aircraft altitude increases until the aircraft is at DH +55 feet. At DH +55 feet, the audio warn output turns off and is reset to begin again at DH +50 feet.

(2) Decision Height Select Circuit

The pilot adjusts the DH adjust control to select the decision height for the approach. The decision height can be any altitude between 0 and 500 feet. A gear train mechanically couples the DH adjust control to the wiper of DH potentiometer R11, the decision height counter, and the DH index. The counter provides a digital readout of the altitude at which the DH index is set. The DH index provides the decision height with reference to aircraft altitude.

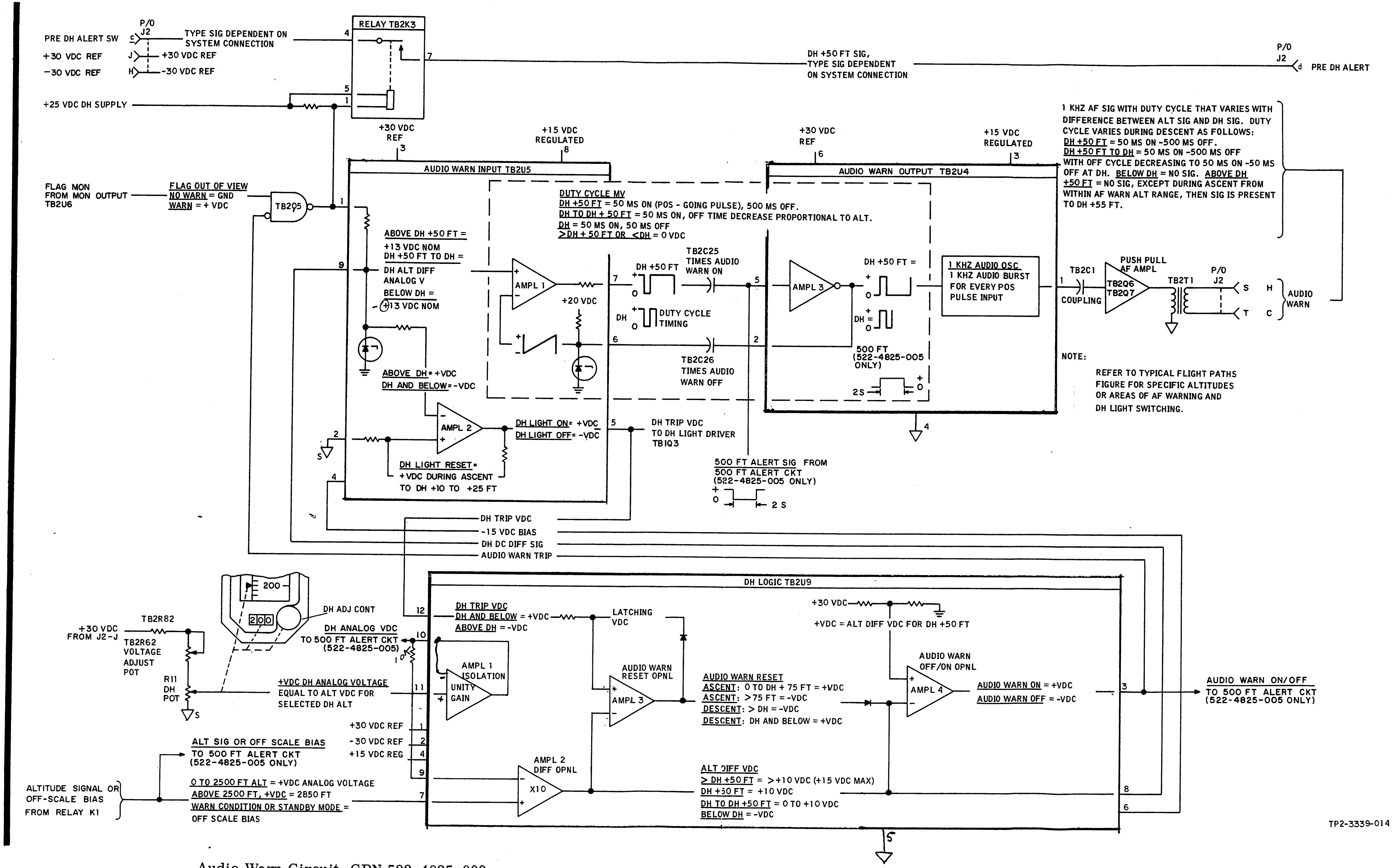


NOTES:

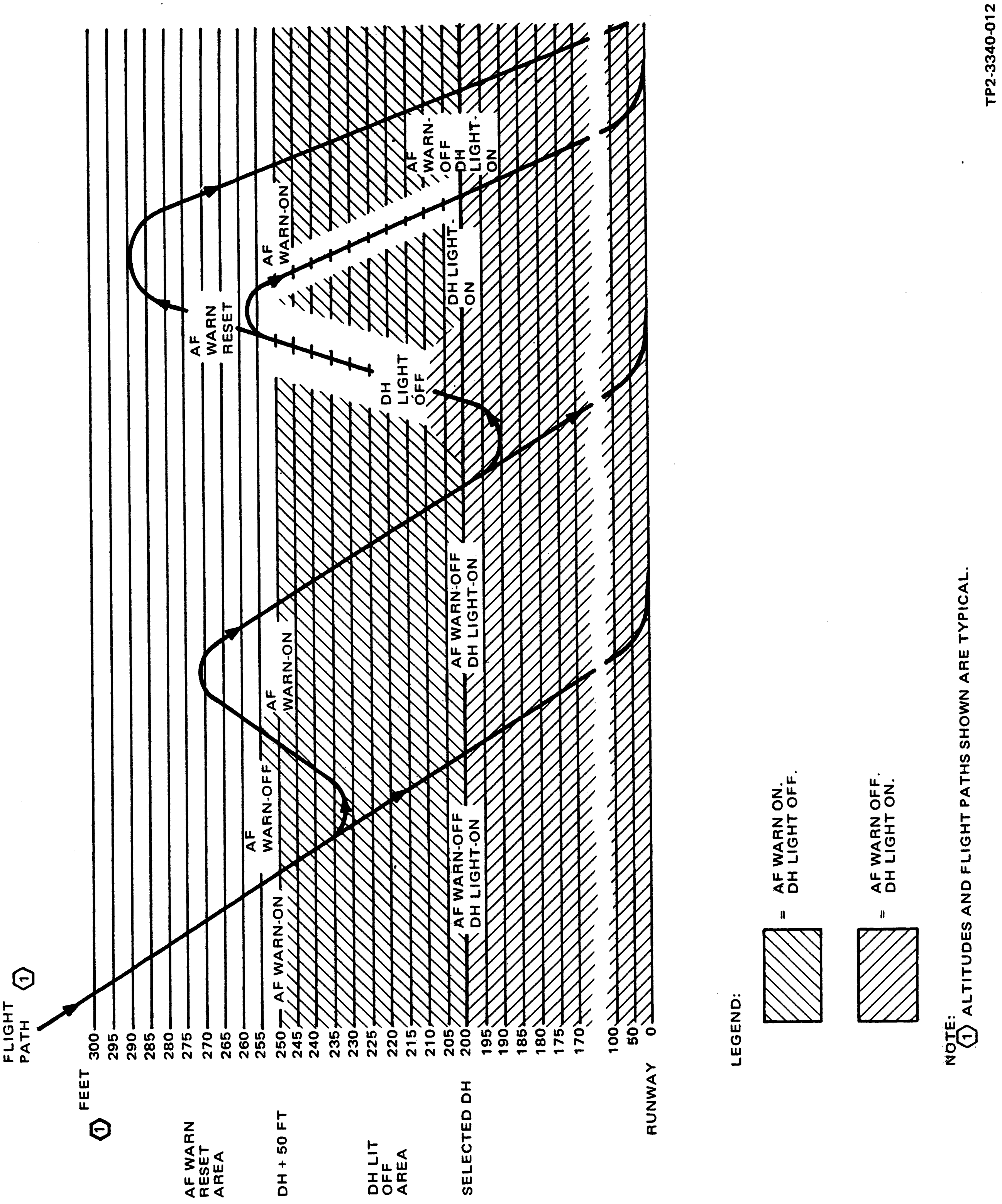
① REFERENCE DESIGNATORS SHOWN IN PARENTHESIS REFER TO CPN 522-4825-006.

② FLAG MONITOR OUTPUT IS NOT USED IN CPN 522-4825-006.

Flag Control Circuit, Functional Diagram
Figure 9


PRE DH ALERT SW
+30 VDC REF
-30 VDC REF
P/O J2
TYPE SIG DEPENDENT ON SYSTEM CONNECTION
+30 VDC REF
-30 VDC REF
+25 VDC DH SUPPLY
RELAY TB2K3
DH +50 FT SIG, TYPE SIG DEPENDENT ON SYSTEM CONNECTION
PRE DH ALERT
+30 VDC REF
+15 VDC REGULATED
AUDIO WARN INPUT TB2U5
FLAG MON FROM MON OUTPUT TB2U6
FLAG OUT OF VIEW
NO WARN = GND
WARN = + VDC
TB2Q5
ABOVE DH +50 FT = +13 VDC NOM
DH +50 FT TO DH = DH ALT DIFF ANALOG V
BELOW DH = -13 VDC NOM
ABOVE DH = +VDC
DH AND BELOW = -VDC
DUTY CYCLE MV
DH +50 FT = 50 MS ON (POS - GOING PULSE), 500 MS OFF.
DH TO DH + 50 FT = 50 MS ON, OFF TIME DECREASE PROPORTIONAL TO ALT.
DH = 50 MS ON, 50 MS OFF
>DH + 50 FT OR <DH = 0 VDC
AMPL 1
+20 VDC
DH +50 FT
DH
DUTY CYCLE TIMING
TB2C25 TIMES AUDIO WARN ON
TB2C26 TIMES AUDIO WARN OFF
AMPL 2
DH LIGHT ON = +VDC
DH LIGHT OFF = -VDC
DH LIGHT RESET = +VDC DURING ASCENT TO DH +10 TO +25 FT
DH TRIP VDC TO DH LIGHT DRIVER TB1Q3
AUDIO WARN OUTPUT TB2U4
AMPL 3
DH +50 FT =
DH =
500 FT (522-4825-005 ONLY)
2S
1 KHZ AUDIO OSC
1 KHZ AUDIO BURST FOR EVERY POS PULSE INPUT
500 FT ALERT SIG FROM 500 FT ALERT CKT (522-4825-005 ONLY)
2 S
1 KHZ AF SIG WITH DUTY CYCLE THAT VARIES WITH DIFFERENCE BETWEEN ALT SIG AND DH SIG. DUTY CYCLE VARIES DURING DESCENT AS FOLLOWS:
DH +50 FT = 50 MS ON -500 MS OFF.
DH +50 FT TO DH = 50 MS ON -500 MS OFF WITH OFF CYCLE DECREASING TO 50 MS ON -50 MS OFF AT DH. BELOW DH = NO SIG. ABOVE DH +50 FT = NO SIG, EXCEPT DURING ASCENT FROM WITHIN AF WARN ALT RANGE, THEN SIG IS PRESENT TO DH +55 FT.
TB2C1
COUPLING
PUSH PULL AF AMPL
TB2Q6
TB2Q7
TB2T1
P/O J2
AUDIO WARN
NOTE:
REFER TO TYPICAL FLIGHT PATHS FIGURE FOR SPECIFIC ALTITUDES OR AREAS OF AF WARNING AND DH LIGHT SWITCHING.
DH TRIP VDC
-15 VDC BIAS
DH DC DIFF SIG
AUDIO WARN TRIP
DH LOGIC TB2U9
200
DH ADJ CONT
+30 VDC FROM J2-J
TB2R82
TB2R62 VOLTAGE ADJUST POT
R11 DH POT
DH ANALOG VDC TO 500 FT ALERT CKT (522-4825-005)
+VDC DH ANALOG VOLTAGE EQUAL TO ALT VDC FOR SELECTED DH ALT
+30 VDC REF
-30 VDC REF
+15 VDC REG
ALT SIG OR OFF SCALE BIAS TO 500 FT ALERT CKT (522-4825-005 ONLY)
ALTITUDE SIGNAL OR OFF-SCALE BIAS FROM RELAY K1
0 TO 2500 FT ALT = +VDC ANALOG VOLTAGE
ABOVE 2500 FT, +VDC = 2850 FT
WARN CONDITION OR STANDBY MODE = OFF SCALE BIAS
DH TRIP VDC
DH AND BELOW = +VDC
ABOVE DH = -VDC
AMPL 1 ISOLATION UNITY GAIN
LATCHING VDC
AUDIO WARN RESET OPNL
AMPL 3
AMPL 2 DIFF OPNL
X10
+30 VDC
+VDC = ALT DIFF VDC FOR DH +50 FT
AUDIO WARN OFF/ON OPNL
AMPL 4
AUDIO WARN RESET
ASCENT: 0 TO DH + 75 FT = +VDC
ASCENT: >75 FT = -VDC
DESCENT: > DH = -VDC
DESCENT: DH AND BELOW = +VDC
AUDIO WARN ON = +VDC
AUDIO WARN OFF = -VDC
AUDIO WARN ON/OFF TO 500 FT ALERT CKT (522-4825-005 ONLY)
ALT DIFF VDC
> DH +50 FT = >+10 VDC (+15 VDC MAX)
DH +50 FT = +10 VDC
DH TO DH +50 FT = 0 TO +10 VDC
BELOW DH = -VDC
TP2-3339-014

Audio Warn Circuit; CPN 522-4825-002, 522-4825-004, and 522-4825-006; Functional Diagram
Figure 10



NOTE:
① ALTITUDES AND FLIGHT PATHS SHOWN ARE TYPICAL.

Audio Warn and Decision Height (DH) Indicator Switching; CPN 522-4825-002, 522-4825-004, and 522-4825-005; Typical
Figure 11

Adjustment of the wiper on DH potentiometer R11 applies a positive dc altitude voltage proportional to the decision height to DH logic module TB2U9. The amplitude of the DH altitude voltage is equal to the positive dc analog altitude voltage from the 860F-1 for the same altitude. Voltage adjust potentiometer TB2R62 adjusts the network for accurate DH altitude voltages.

(3) Decision Height Logic Module TB2U9

(a) Above DH +50-Foot Operation

The positive dc DH altitude voltage from R11 is applied to amplifier 1. Amplifier 1 is a unity gain amplifier that provides isolation between R11 and TB2U9 circuits to prevent excessive current flow through the wiper of R11. The output of amplifier 1 is applied to the inverting input of amplifier 2. On indicators with CPN 522-4825-005, the output of amplifier 1 also is applied to the 500-foot alert circuit.

The positive dc altitude voltage from the off-scale sensor circuit is applied applied to the noninverting input of amplifier 2. Amplifier 2 is a differential operational amplifier with a gain of 10. Above DH +50 feet, the altitude voltage exceeds the DH voltage, and amplifier 2 applies an altitude difference voltage, +10 to +15 volts dc, to amplifiers 3 and 4 and to audio warn input module TB2U5.

Amplifier 3 is an audio warn reset operational amplifier that functions as a switch. The amplifier resets the audio warn circuits for operation after the audio warn is turned off at the decision height. The positive dc altitude difference voltage from amplifier 2 is applied to the inverting input, and a negative dc DH trip voltage is applied to the noninverting input. The negative dc DH trip voltage indicates that the decision height has not been reached. Both of the inputs cause the amplifier to apply a positive dc audio warn reset voltage to two diodes. Both diodes are reverse biased and the negative dc reset voltage is blocked.

Amplifier 4 is an audio warn off/on operational amplifier that functions as a comparator. A fixed positive dc bias voltage that is equal to the altitude difference voltage at DH +50 feet is applied to the noninverting input. The altitude difference voltage from amplifier 2 is applied to the inverting input. Above DH +50 feet, the altitude difference voltage exceeds the fixed bias voltage. Amplifier 4 applies a negative-volt dc audio warn trip voltage to AND gate TB2Q5. The negative-volt dc audio warn trip voltage indicates that the audio warn is off.

(a)A 500-Foot Alert Operation, Indicators With CPN 522-4825-005 Only

At 500-feet, a 2-second-wide negative-going pulse from the 500-foot alert circuit is applied to audio warn output module TB2U4. Amplifier 3 inverts the pulse and triggers the 1-kHz audio oscillator. The oscillator produces a 2-second, 1-kHz audio signal that is applied through coupling capacitor TB2C1; push-pull amplifier TB2Q6, Q7; and transformer T2T1 to J2S and J2T as a 500-foot alert audio signal.

(b) DH +50 Feet to Decision Height Operation

At DH +50 feet, the dc altitude signal applied to amplifier 2 has decreased to a point where it exceeds the DH voltage by a voltage proportional to 50 feet. Amplifier 2 applies a +10-volt dc altitude difference voltage to amplifiers 3 and 4, and to TB2U5.

Amplifier 3 is not affected by the decrease in the altitude difference voltage and still applies the negative dc audio warn reset voltage to the two diodes.

The +10-volt dc altitude difference voltage applied to amplifier 4 is less than the fixed bias and amplifier 4 switches to apply a positive dc audio warn trip voltage to AND gate TB2Q5. The positive dc audio warn trip voltage indicates that the audio warn is on.

As the altitude decreases toward the decision height, the dc altitude voltage applied to amplifier 2 decreases and the output of amplifier 2 decreases toward 0 volt dc. Amplifiers 3 and 4 are not affected by the decrease in the altitude difference voltage and apply the same outputs as at DH +50 feet.

At the decision height, the dc altitude voltage and the DH voltage inputs to amplifier 2 are equal. The amplifier applies a 0-volt dc altitude difference voltage to amplifiers 3 and 4, and to TB2U5.

A positive-volt dc DH trip voltage, indicating that the decision height is reached, is applied from TB2U5 to the noninverting input of amplifier 3. The DH trip voltage exceeds the 0-volt dc altitude difference voltage and the amplifier applies a positive-volt dc reset voltage through a diode to the noninverting input latching the amplifier in the present state. The positive-volt dc reset voltage is also applied through a diode to the inverting input of amplifier 4.

The inverting input of amplifier 4 exceeds the fixed bias at the noninverting input and the amplifier applies a negative-volt dc audio warn trip voltage to TB2Q5. The negative-volt dc trip voltage indicates that the audio warn is off.

(c) Below Decision Height Operation

The dc altitude voltage applied to amplifier 2 decreases with altitude and the DH voltage continues to exceed the altitude voltage. Amplifier 2 applies a negative-volt dc altitude difference voltage to amplifiers 3 and 4, and to TB2U5.

Amplifier 3 is latched providing a positive-volt dc audio warn reset voltage, and the change in the altitude difference voltage does not affect the operation.

Amplifier 4 is latched providing a negative-volt dc audio warn trip voltage by the positive-volt dc reset voltage from amplifier 3. The change in the altitude difference signal does not affect the operation of the amplifer.

(d) Climbout From Within the Audio Warn On Area Operation

When a climbout is required after the audio warn output begins, the dc altitude voltage applied to amplifier 2 must be equal to a voltage proportional to DH +55 feet before amplifier 2 switches. At DH +55 feet, amplifier 2 applies an altitude difference voltage, greater than +10 volts dc, to amplifiers 3 and 4, and TB2U5. The altitude difference voltage exceeds the fixed bias applied to amplifier 4, and the amplifier applies a negative-volt dc audio warn trip voltage to TB2Q5. The trip voltage indicates the audio warn is off.

Amplifier 3 is not affected by the change in the altitude difference voltage.

(e) Takeoff or Climbout From Below the Decision Height Operation

Amplifier 3 is latched at the decision height to apply a positive-volt dc audio warn reset voltage to amplifier 4. Amplifier 4 is latched by the reset voltage to apply a minus-volt dc audio warn trip voltage to AND gate TB2Q5. The positive-volt dc DH trip voltage from TB2U5 applied to the noninverting input of amplifier 3 relatches the circuit below the decision height in the event the power is interrupted.

The dc altitude voltage applied to amplifier 2 must be a voltage equal to DH +75 feet before amplifier 2 applies a positive-volt dc altitude difference signal with enough amplitude to exceed the latching voltage applied to amplifier 3.

When the altitude difference voltage from amplifier 2 has reached an amplitude greater than the latching voltage applied to amplifier 3, amplifier 3 unlatches and applies a negative-volt dc reset voltage to the two diodes. The diodes are reverse biased and the reset voltage is blocked. With the removal of the reset voltage from the inverting input of amplifier 4, the positive-volt dc altitude difference voltage is applied to the inverting input. The amplifier is controlled by the altitude difference signal and the circuit is reset for operation at DH +50 feet.

(4) Audio Warn Input Module TB2U5 and Audio Warn Output Module TB2U4

(a) Above DH +50-Foot Operation

A negative-volt dc audio warn trip voltage, indicating the audio warn is off, is applied from TB2U9 to AND gate TB2Q5. A low (ground) flag monitor signal, indicating a no warn condition, is applied from TB2U6 to AND gate TB2Q5. The AND gate is not satisfied and applies a high (positive volts dc) to TB2U5.

The positive-volt dc altitude difference voltage, +10 to +15 Vdc, is applied from TB2U9 to TB2U5. The inputs from TB2U9 and TB2Q5 are applied to a junction in TB2U5. The resultant +13 volts dc is applied to the noninverting input of amplifier 1 and to the inverting input of amplifier 2.

A fixed dc bias, equal to the altitude difference voltage at the decision height, is applied to the noninverting input of amplifier 2. The +13 volts dc applied to the inverting input of amplifier 2 exceeds the fixed bias, and the amplifier applies a negative-volt dc DH trip voltage to the DH light circuit and to TB2U9.

Amplifier 1, duty cycle timing capacitor TB2C25, amplifier 3, and duty cycle timing capacitor TB2C26 form a duty cycle multivibrator. The multivibrator controls the on and off times of the audio warn output. The +13 volts dc applied to the noninverting input of amplifier 1 exceeds the bias applied to the inverting input and the multivibrator is off.

(b) DH +50 Feet to Decision Height Operation

At DH +50 feet, a positive dc audio warn trip voltage, indicating the audio warn is on, is applied from TB2U9 to AND gate TB2Q5. The AND gate is satisfied and applies a low (ground) to the positive-volts dc applied to TB2U5 and to the control coil of TB2K3.

Relay TB2K3 energizes closing contacts 4 and 7. The pre-DH alert signal applied to J2-c is applied through K3-4 and 7 to J2-d. The pre-DH alert signal is used in external circuits to indicate when the aircraft is at DH +50 feet.

The ground applied from TB2Q5 to TB2U5 allows the positive-volt dc altitude difference voltage from TB2U9 to be applied to amplifiers 1 and 2. Amplifiers 1 and 2 are now controlled by the altitude difference voltage.

At DH +50 feet, a +10-volt dc altitude difference voltage is applied to the noninverting input of amplifier 2. The +10 volts dc exceeds the fixed bias applied to the inverting input and the operational amplifier does not switch. A negative-volt dc DH trip voltage is still applied to the DH light circuit and to TB2U9.

At DH +50 feet, the +10-volt dc altitude difference voltage is applied to the nonverting input of amplifier 1. The fixed bias applied to the inverting input exceeds the +10-volt dc difference voltage and a negative-volt dc is applied to TB2C25. Capacitor TB2C25 charges, and a low is applied to inverting amplifier 3. Amplifier 3 applies a high (positive volts dc) to the 1-kHz audio oscillator and to TB2C26. Capacitor TB2C26 rapidly charges dropping the inverting input to amplifier 1 to just below ground. Amplifier

1 switches and applies a positive-volt dc output to TB2C25. Capacitor TB2C25 discharges, and a high is applied to inverting amplifier 3. Amplifier 3 applies a low (0 or ground) to the 1-kHz audio oscillator and to TB2C26. Capacitor TB2C26 charges in the opposite direction.

The inverting input to amplifier 1 increases positively until it exceeds the noninverting input, and then the multivibrator repeats the cycle. At DH +50 feet, the time required for the inverting input to become more positive than the noninverting input is 500 milliseconds. This time decreases as the altitude difference signal applied to the noninverting input decreases. The time that the positive volts dc from amplifier 3 is applied to the 1-kHz audio oscillator, indicating that the audio oscillator is turned on, is controlled by duty cycle timing capacitor TB2C25. The time that the low (0 or ground) is applied to the oscillator, indicating the oscillator is turned off, is controlled by duty cycle timing capacitor TB2C26. When the positive volts dc is applied to the 1-kHz audio oscillator from amplifier 3, the oscillator turns on and applies a 1-kHz audio signal through coupling capacitor TB2C1, push-pull amplifier TB2Q6, Q7, and audio transformer TB2T1 to J2-S and J2-T. The audio signal is used in an external audio system to indicate when the aircraft is at DH +50 feet and from DH +50 feet to the decision height. At DH +50 feet, the audio output is on for 50 milliseconds and off for 500 milliseconds. As the altitude decreases, the on time remains the same but the off time decreases proportionately to the altitude decrease. Just before the decision height is reached, the audio output is on for 50 milliseconds and off for 50 milliseconds.

At decision height, the positive-volt dc altitude difference voltage is at 0 volt dc. The inverting input of amplifier 2 exceeds the noninverting input and the amplifier switches applying a positive-volt dc DH trip voltage to the DH light circuit and to TB2U9. The positive-volt dc trip voltage indicates that the decision height is reached. Amplifier 2 is latched to provide a positive-volt dc output by a feedback loop. An altitude of DH +20 to +30 feet must be attained during takeoff or climbout from below decision height before the altitude difference voltage to the noninverting input exceeds the inverting input to reset the DH trip voltage.

The positive-volt dc DH trip voltage applied to TB2U9 causes a negative-volt dc audio warn trip voltage to be applied to AND gate TB2Q5. AND gate TB2Q5 is not satisfied and applies a positive volts dc to the control coil of TB2K3 and to TB2U5. Relay TB2K3 deenergizes opening contacts 4 and 7, and the pre-DH alert signal to J2-D is removed.

The positive volts dc applied to TB2U5 turns off the audio warn duty cycle multivibrator.

(c) Below Decision Height Operation

The altitude difference voltage from TB2U9 is 0 volt dc at decision height and decreases negatively as the altitude decreases. The negative volts dc from AND gate TB2Q5 keeps the duty cycle multivibrator turned off, and change in altitude difference voltage does not affect the output of amplifier 2. Therefore, the audio warn circuits are turned off and a positive-volt dc DH trip voltage is applied to the DH light circuit and to TB2U9 at all altitudes below the decision height.

FA. Audio Warn Circuit Operation, Indicators With CPN 522-4825-006 Only (Refer to figures 11A and 11B.)

(1) General

An audio warn output begins when the altitude is decreased to the decision height +50 feet. The audio signal begins as a 400-Hz continuous-tone audio signal that increases in frequency proportional to altitude decrease until the decision height is reached. At the decision height the audio warn signal is 800 Hz just before the audio warn turnoff. The audio warn turns off when the DH indicator lights.

If the altitude is increased after the audio warn begins and before the decision height is reached, the audio warn decreases in frequency and then turns off at DH +60 feet. When the altitude is decreased again, the audio warn signal begins at DH +50 feet.

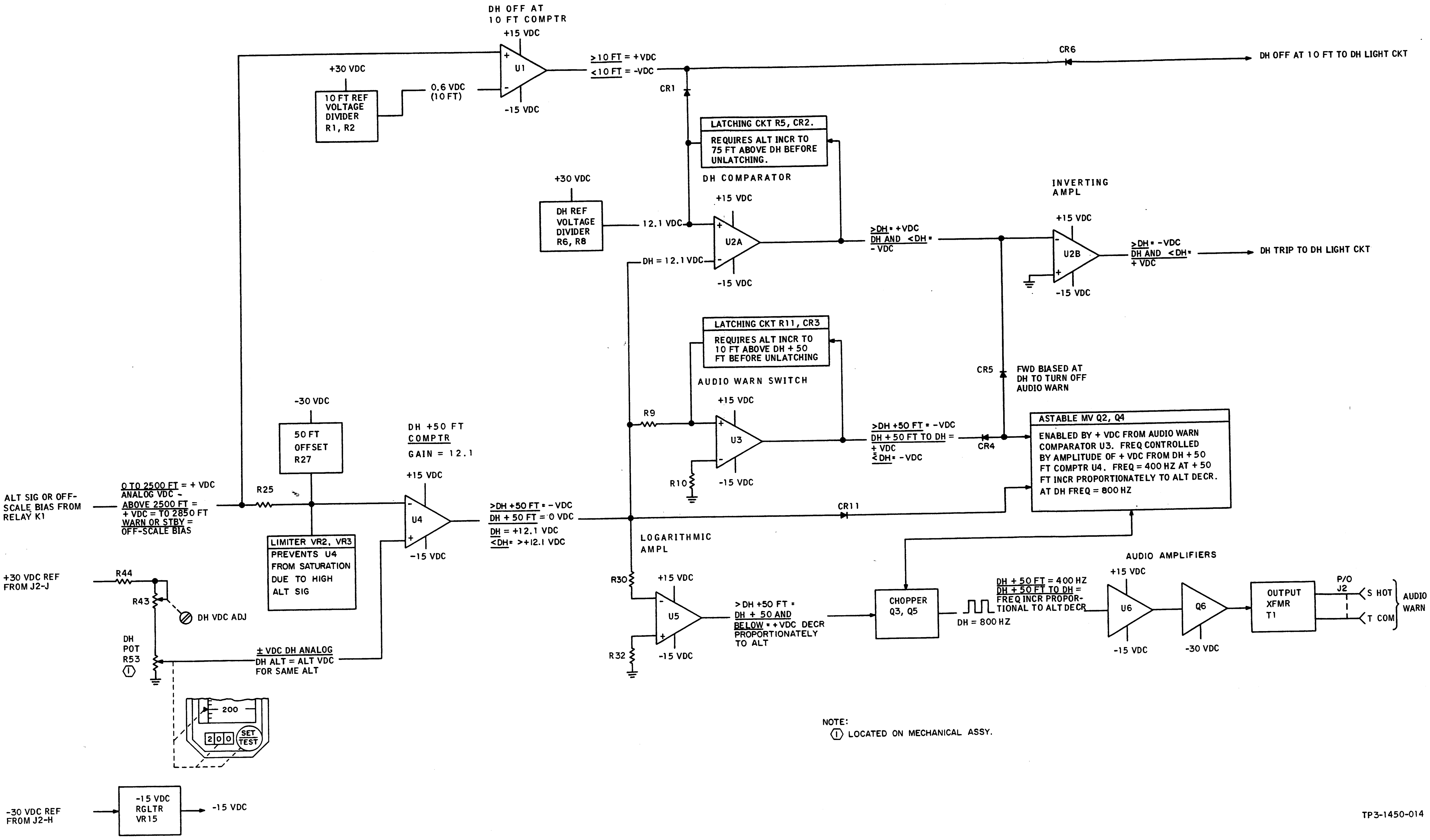
If the altitude is increased after the audio warn is turned off at the decision height, the audio warn does not operate during the increasing altitude. When an altitude of DH +75 feet is reached, the audio warn circuit resets to begin at DH +50 feet when the altitude decreases. The DH indicator remains lit until DH +75 feet is reached.

(2) Decision Height Select Circuit

The SET/TEST control is adjusted to select the desired decision height. The decision height can be any altitude from between 10 and 500 feet. Altitudes below 10 feet cannot be used because of the automatic turnoff of the DH indicator at 10 feet. A gear train mechanically couples the SET/TEST control to the wiper of DH potentiometer R53, the decision height counter, and the decision height index on the display. The counter provides a digital readout of the selected decision height. The index on the display provides a reference between altitude and decision height. Adjustment of the wiper on R53 applies a positive dc voltage, which is proportional to the selected altitude, to DH off at 10-foot comparator A1U1 and to DH +50-foot comparator A1U4. The amplitude of the positive voltage from R53 is equal to the positive dc auxiliary altitude output voltage for the same altitude. DH voltage adjust variable resistor R43 adjusts the DH circuit to provide accurate DH voltages from R53.

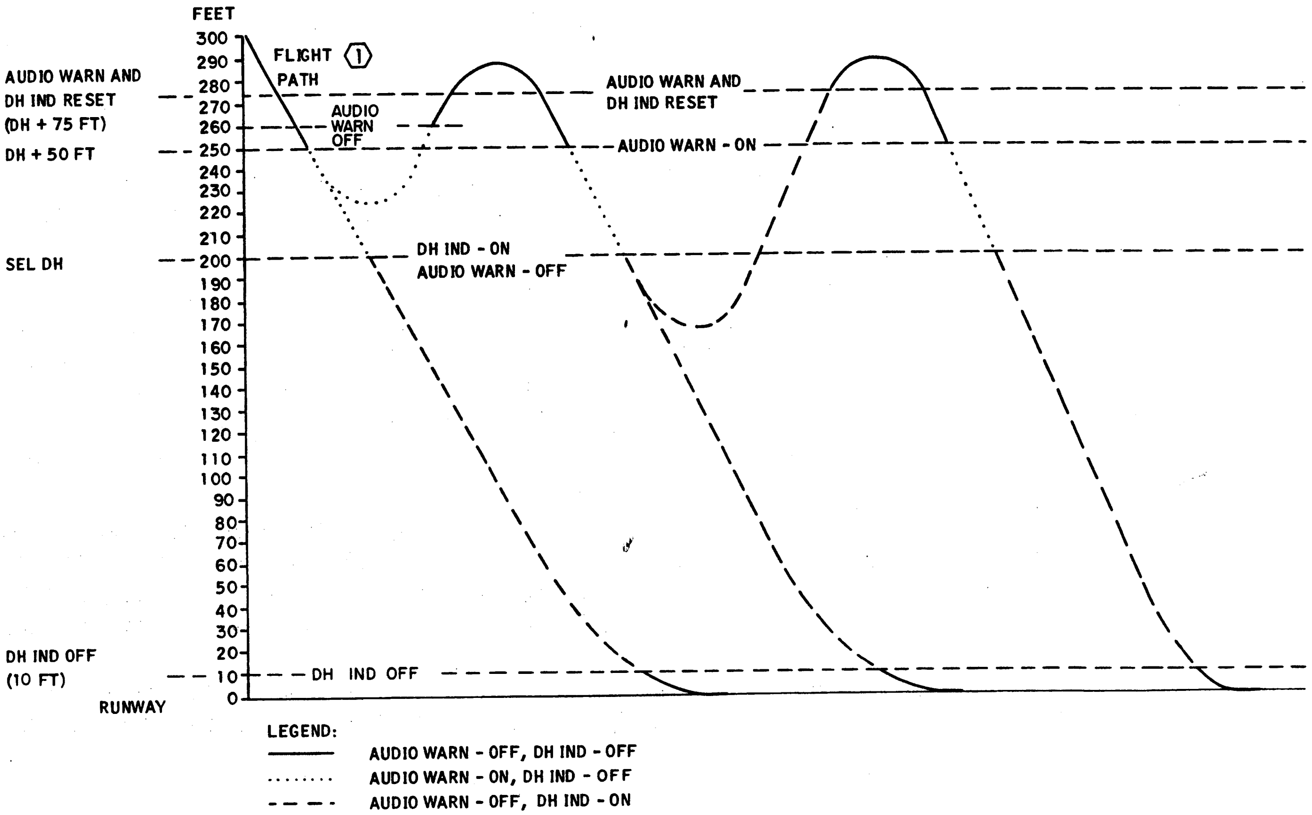
(3) DH +50-Foot comparator A1U4 Circuit

The positive dc DH voltage, proportional to the selected decision height, and the altitude signal, proportional to aircraft altitude, are applied to DH +50-foot comparator A1U4. Limiter A1VR1, VR2 limits the altitude signal input to a maximum of +13 Vdc to prevent saturation of A1U4 at altitudes greater



NOTE:
① LOCATED ON MECHANICAL ASSY.

Audio Warn Circuit, CPN 522-4825-006,
Functional Diagram
Figure 11A



NOTE:

⟨1⟩ EXAMPLE FLIGHT PATHS FOR ILLUSTRATIVE PURPOSES.

TP3-1464-013

Audio Warn and Decision Height (DH) Indicator Switching
(CPN 522-4825-006), Typical
Figure 11B

than 650 feet. An offset voltage equal to a 50-foot altitude is applied from the -30-Vdc reference voltage through R27 to the altitude signal input. The offset voltage causes the altitude input voltage to decrease by 1 volt (50 feet). Therefore, when the altitude is actually 450 feet, the input to A1U4 is proportional to an altitude of 400 feet. DH +50-foot comparator A1U4 compares the two inputs, and when the altitude signal is greater than 50 feet above the selected decision height, applies a negative dc voltage to DH comparator

A1U2A, to audio warn comparator A1U3, through A1CR11 to astable multivibrator A1Q2, Q4, and to logarithmic amplifier A1U5. When the altitude decreases to DH +50 feet, both inputs are equal, and the output of A1U4 is zero. As the altitude decreases from DH +50 feet to the decision height, the output becomes proportionately more positive until at decision height the output equals +12.1 Vdc. The gain of A1U4 is 12.1.

(4) Audio Warn Switch U3 Circuit

At altitudes greater than DH +50 feet, the negative dc voltage from A1U4 is applied through A1R9 to A1U3. The inverting input of U3 is referenced to ground causing U3 to operate as a noninverting amplifier. The negative dc output from A1U3 is applied to latching circuit A1R11, CR3, and through A1CR4 to A1CR5 and astable multivibrator A1Q2, Q4. The negative dc output reverse biases A1CR3 in the latching circuit that prevents the latching voltage from being applied to the input of A1U3. The negative dc voltage applied through A1CR4 reverse biases A1CR5 and keeps multivibrators A1Q2, Q4 turned off.

At DH +50 feet, the input from A1U3 is 0 Vdc. The inverting input turns on A1U3, and a positive dc output is applied to latching circuit A1CR3, R11 and A1CR4. The positive dc voltage forward biases A1CR3, and a positive dc latching voltage is applied to the noninverting input. Switch A1U3 is latched in positive dc output state. The positive dc voltage applied to A1CR4 reverses A1CR4, and astable multivibrator A1Q2, Q4 is turned on. After A1U3 is latched and the altitude is increased, an altitude of DH +60 feet must be reached before the input from A1U3 becomes negative enough to overcome the latching input and switch A1U3 to a negative dc voltage output that turns off the astable multivibrator.

(5) Astable Multivibrator A1Q2, Q4 Circuit

Astable multivibrator A1Q2, Q4 is controlled by three inputs: an output from A1U3 that indicates when DH +50 feet is reached, an output from A1U2A that indicates when the decision height is reached, and an output from A1U4 that is proportional to altitude between DH +50 feet and the decision height.

At altitudes greater than DH +50 feet, the negative dc voltage from A1U3A reverse biases A1CR5 and multivibrator A1Q2, Q4 keeping the multivibrator turned off.

At DH +50 feet, the positive Vdc from A1U3 reverse biases A1CR4 and permits the multivibrator to turn on. The frequency of the multivibrator output is determined by the amplitude of the positive dc voltage from A1U4. The frequency of the multivibrator at DH +50 feet is 400 Hz.

As the altitude decreases toward the decision height, the input from A1U4 becomes more positive and the output frequency increases.

At the decision height, the output of the multivibrator is 800 Hz, and a negative dc voltage from A1U2A is applied through A1CR5 to the multivibrator. The multivibrator turns off at the decision height.

The output of the multivibrator is applied to chopper A1Q3, Q5 in the audio circuits.

(6) Audio Circuits

The audio circuits consist of logarithmic amplifier A1U5, chopper A1Q3, Q5, audio amplifiers A1U6 and A1Q6, and output transformer T1.

The output of A1U4 is applied to logarithmic amplifier A1U5. Amplifier A1U5 applies the inverted logarithmically amplified signal to chopper A1Q3, Q5. The output of A1U5 is biased to the +1.0-Vdc reference to produce the initial signal level at DH +50 feet. At DH +50 feet, the output of A1U4 is 0 Vdc, but this is the point where the audio signal starts. Therefore, the +1.0-Vdc reference provides an input to chopper A1Q5 to produce the audio signal.

The output of multivibrator A1Q2, Q4 is applied to chopper A1Q3, Q5 and controls the frequency at which A1Q3, Q5 chops the audio signal. At DH +50 feet, a 400-Hz output from the multivibrator is applied to chopper A1Q3, Q5, and the audio signal is chopped at a 400-Hz rate.

The chopped audio signal is applied through audio amplifiers A1U6 and A1Q6 and output transformer A1T1 to J2S and J2T as an audio warn output.

(7) DH Comparator A1U2A and Inverting Amplifier A1U2B

The noninverting input to DH comparator A1U2A is referenced to a +12.1-dc voltage that is applied from the +30-Vdc reference through voltage divider A1R6, R8 to the input. The +12.1-Vdc reference is equal to the output of DH +50-foot comparator A1U4 at the decision height.

At altitudes above the decision height, the input from A1U4 is less than the reference input, and a positive dc voltage is applied from A1U2A to latching circuit A1CR2, R5, A1CR5, and inverting amplifier A1U2B. Diode A1CR2 in the latching circuit is reverse biased, and a latching voltage is not applied to A1U2B. Diode A1CR5 is reverse biased enabling the multivibrator to be controlled by A1U3. Inverting amplifier A1U2B applies a negative dc voltage to the DH light circuit as a DH trip voltage.

At the decision height, the input from A1U4 slightly exceeds the reference, and the output switches to a negative dc voltage. The negative dc voltage forward biases A1CR2 in the latching circuit and latches A1U2A to provide a negative dc voltage output. The negative dc voltage forward biases A1CR5 and turns the multivibrator off. Inverting amplifier A1U2B inverts the input and applies a positive dc voltage to the DH light circuit that turns on the DH indicator.

After A1U2A is latched, the altitude must be increased to DH +75 feet before the output of A1U4 becomes enough negative to control A1U4 and release the latch.

(8) DH Off at 10-Foot Comparator A1U1 Circuit

The dc analog altitude voltage, proportional to the altitude, and a dc reference voltage, proportional to 10 feet, are applied to A1U1. The altitude voltage is received from relay K1 and the reference voltage from voltage divider A1R1, R2.

When the altitude signal decreases to a voltage proportional to 10 feet, A1U1 switches from a positive dc voltage output to a negative dc voltage output. The negative dc voltage is applied through A1CR6 to the DH light circuit and turns off the DH indicator. The negative dc voltage is applied through A1CR1 to DH comparator A1U2A and removes the latching voltage applied to its input. The negative dc voltage is applied through A1CR5 to astable multivibrator A1Q2, Q4 and turns off the multivibrator if it is operating.

When the altitude increases to 10 feet and above, A1U1 switches to a positive Vdc output, and DH comparator A1U2A switches to provide a negative dc voltage output that lights the DH indicator.

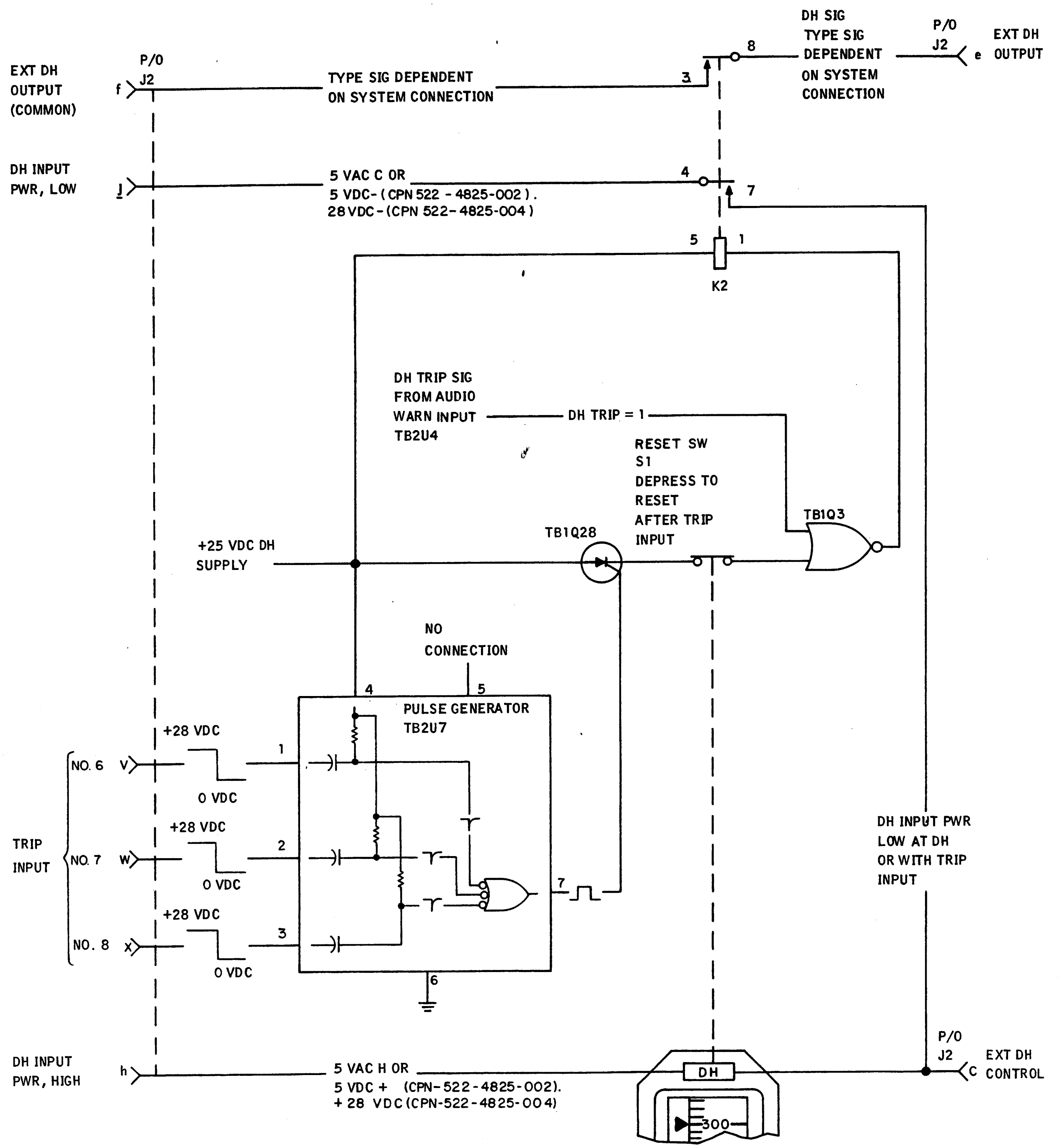
G. Decision Height (DH) Light Circuit Operation, Indicator With CPN 522-4825-002 and 522-4825-004 Without SB 5 (Refer to figure 12.)

The DH indicator on the front panel of the indicator can be lit by any one of four different inputs; a positive DH trip voltage from the audio warn circuit indicating the decision height is reached or any one of three altitude trips from the 860F-1, indicating that a specific altitude is reached. The decision height is selected by adjusting the DH adjust control on the front of the indicator to set the DH counter and index at an altitude between 0 and 500 feet. The altitude trip inputs are pre-adjusted to specific altitudes in the 860F-1.

At the decision height, a positive-volt dc DH trip voltage is applied from the audio warn circuit to OR gate TB1Q3. OR gate TB1Q3 is satisfied and applies a low (ground) to the control coil of relay K2. Relay K2 energizes closing contacts 4 and 7, and 3 and 8. The external DH signal at J2-f is applied through K2-3 and 8 to J2-e. The external DH signal is used to externally trigger circuits at the decision altitude. DH power, high, is applied from J2-h to the DH indicator. The DH input power, low, is applied from J2-j through K2-4 and 7 to the DH indicator and to J2-C as an external DH control signal. The DH indicator lights indicating that the decision height altitude is reached.

On indicators with CPN 522-4825-002, the input power can be either 5 volts ac or dc.

On indicators with CPN 522-4825-004, the input power is 28 volts dc.



TP2-3338-014

Decision Height (DH) Light Circuit, CPN 522-4825-002 and 522-4825-004 Without SB 5, Functional Diagram
Figure 12

Relay K2 also energizes when any one of the three altitude trips is applied from the 860F-1. When an altitude trip is applied through J2-V, J2-W, or J2-X to TB2U7, the trip voltage drops from +28 volts dc to 0 volt dc. Pulse generator TB2U7 applies a positive-going pulse to TB1Q28. Silicon controlled rectifier TB1Q28 is forward biased and applies the +25-volt dc DH supply voltage through reset switch S1 to OR gate TB1Q3. OR gate TB1Q3 is satisfied and the remainder of the circuit operates the same as described at decision height. After an altitude trip lights the DH indicator, the indicator can be turned off by depressing the DH indicator. Depressing S1 interrupts the +25-volt dc DH supply through TB1Q28, and TB1Q28 is turned off. With TB1Q28 off, relay K2 deenergizes turning off the DH indicator and removing the DH external control signal at J2-C and the external DH signal at J2-e. The DH indicator cannot be turned off after the decision height is reached.

H. Decision Height (DH) Light Circuit, Indicators With CPN 522-4825-002 and 522-4825-004 With SB 5, 522-4825-005, and 522-4825-006 (Refer to figure 13.)

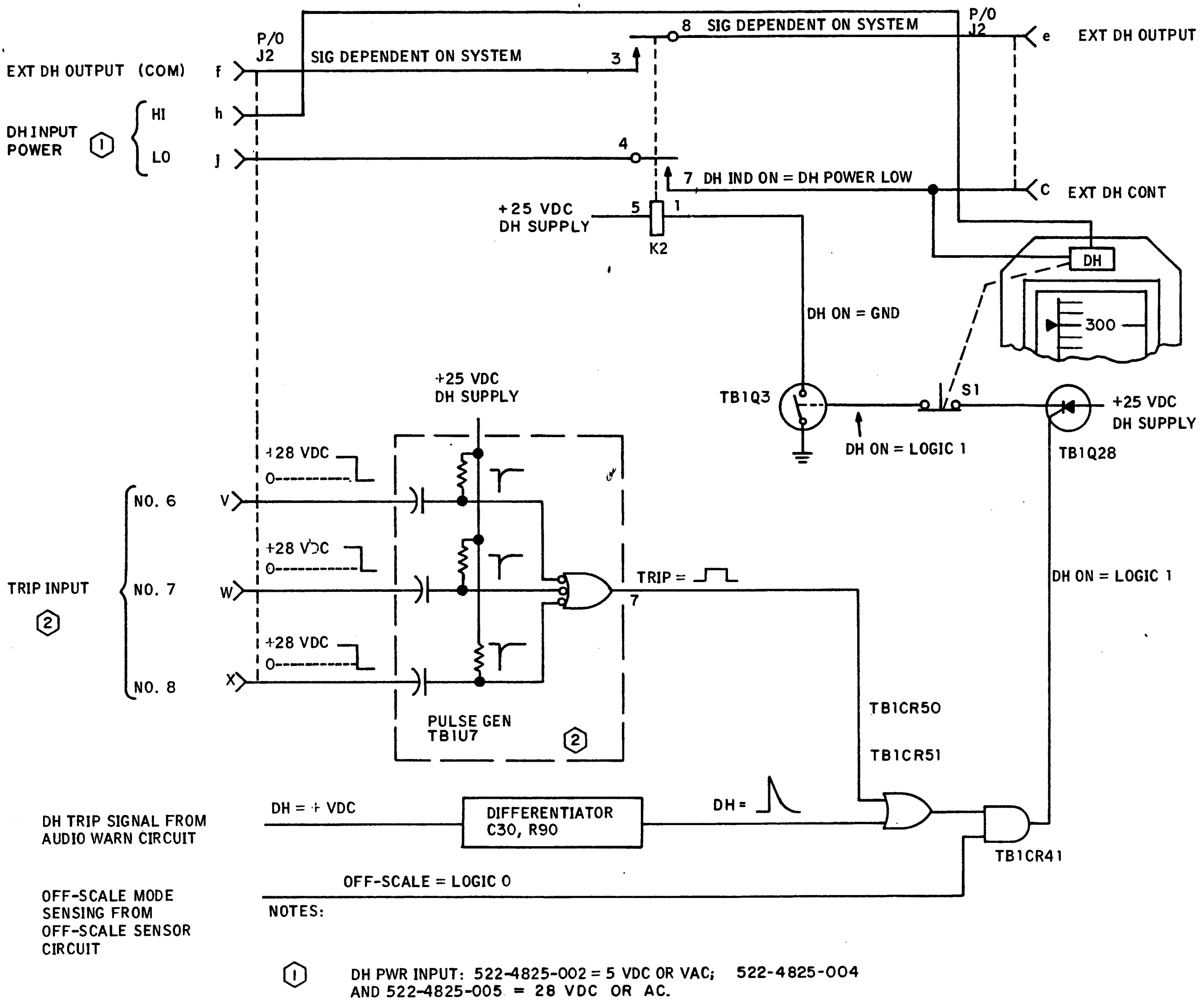
Four different inputs light the DH indicator on the front panel; a positive DH trip voltage from the audio warn circuit or any one of three negative-going trip inputs from the 860F-1 Radio Altimeter.

On indicators with CPN 522-4825-005, the trip inputs from the 860F-1 are not used, and the pulse generator is not contained in the indicator. Connector pins J2-V, W, and X are spares.

At the decision height, a positive dc DH trip voltage is applied from the audio warn circuit to OR gate TB1CR50, CR51 (A2CR50, CR51). The positive dc voltage (logic 1) satisfies the OR gate, and a logic 1 is applied to AND gate TB1CR41 (A2CR41). With the off-scale sensing signal a logic 1, indicating the indicator is not in the off-scale mode, the AND gate is satisfied and applies a logic 1 to switch TB1Q28 (A2Q28). Switch TB1Q28 (A2Q28) turns on and applies the +25-Vdc DH voltage to switch TB1Q3 (A2Q10). Switch TB1Q3 (A2Q10) turns on and applies a ground to relay K2. Relay K2 energizes and applies the DH input power low to the DH indicator and J2-C. The DH indicator lights indicating the decision height is reached. The output at J2-C can be used to control an external DH annunciator. Relay K2 applies the external DH output at J2-f to J2-e.

On indicators with CPN 522-4825-002, 522-4825-004, and 522-4825-006, a negative trip input from the 860F-1 Radio Altimeter is applied to pulse generator TB1U7 (A2U16) when the altitude decreases to a preset altitude. The pulse generator applies a positive-going pulse through OR gate TB1CR50, CR51 (A2CR50, CR51) to AND gate TB1CR41 (A2CR41). With the off-scale sensing signal a logic 1, the pulse is applied to switch TB1Q28 (A2Q28), and the switch turns on applying the +25-Vdc DH supply voltage to switch TB1Q3 (A2Q10). The remainder of the circuit operates to turn on the DH indicator as described by the DH trip input.

When the indicator is in the off-scale mode, a logic 0 is applied to AND gate TB1CR41 (A2CR41), and the DH light circuit is disabled. With the circuit disabled, the DH indicator cannot turn on when a DH trip or a trip input from the 860F-1 is received.



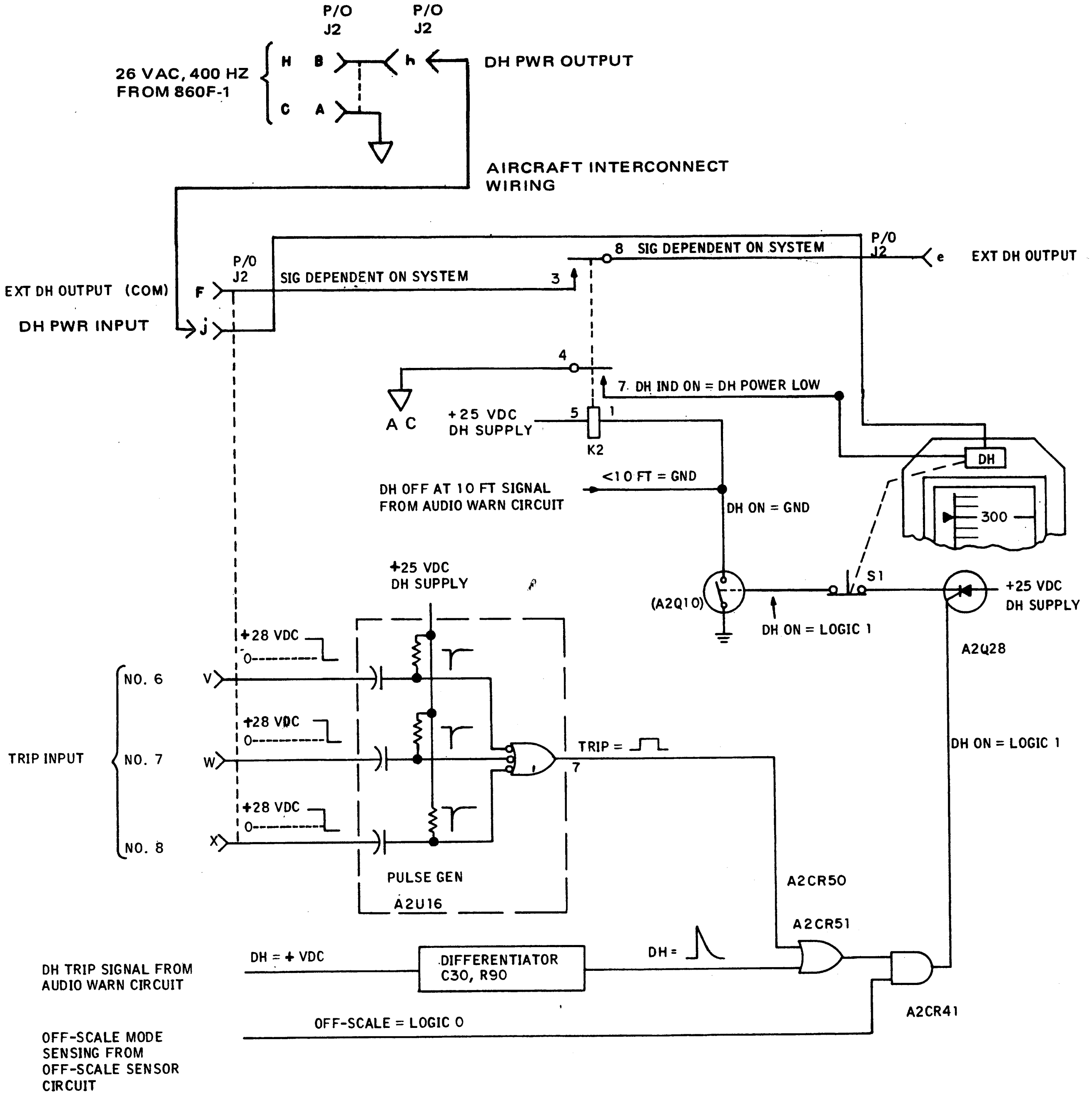
NOTES:

① DH PWR INPUT: 522-4825-002 = 5 VDC OR VAC; 522-4825-004 AND 522-4825-005 = 28 VDC OR AC.

② TRIP INPUT CKT NOT APPLICABLE TO 522-4825-005.

TP3-1451-013

Decision Height (DH) Light Circuit; CPN 522-4825-002 and 522-4825-004 With SB 5, and 522-4825-005; Functional Diagram
Figure 13



TP3-4290-019

Decision Height (DH) Light Circuit; CPN 522-4825-006;
Functional Diagram
Figure 13A

Depressing the DH indicator after it lights instantaneously removes the forward bias to TB1Q28 (A2Q28) and turns off TB1Q28 (A2Q28). With TB1Q28 (A2Q28) turned off, switch TB1Q3 (A2Q10) turns off, and relay K2 deenergizes. When K2 deenergizes, the DH indicator is turned off, and the external DH outputs are removed.

On indicators with CPN 522-4825-006 (below serno 1509, or without SB 12), at 10 feet, negative dc DH off at 10-foot voltage is applied from the audio warn circuit to relay K2. Relay K2 deenergizes, turns off the DH indicator, and removes the external DH outputs. When the altitude increases to 10 feet, the DH off at 10-foot voltage switches to a positive dc voltage, and the DH light circuit turns on the DH indicator that remains lit until the altitude is increased to 75 feet above the decision height.

On indicators CPN 522-4825-006 with SB 12 or serno 1509 and above, at 10 feet, the negative (DH off at 10 feet) voltage is applied from the audio warn circuit to the reset circuit C39 and CR52 to reset SCR A2Q28. Relay K2 deenergizes, turns off the DH indicators, and removes the external DH outputs. The DH light cannot be lighted again until the altitude is increased to 75 feet above the decision height.

I. 500-Foot Alert Circuit, Indicators With CPN 522-4825-005 Only (Refer to figure 14.)

The 500-foot alert circuit provides a 2-second trigger pulse to the 1-kHz audio oscillator in the audio warn circuit. The audio warn circuit produces a 2-second, 1-kHz audio tone at 500 feet.

The dc analog altitude signal, which is proportional to altitude, is applied from relay K1 to 500-foot comparator TB2U20B. The signal is limited to 15 volts by TB2VR50 to prevent saturation of TB2U20B at altitudes greater than 800 feet. The noninverting input to TB2U20B is a reference voltage, which is proportional to 500 feet, from voltage divider TB2R108, R110. When the altitude decreases to 500 feet, the output of TB2U20B switches from a negative dc voltage to a positive dc voltage that is applied to 2-second timing circuit TB2C50, R105.

The DH trip signal and the audio warn on/off signal are applied to OR gate TB2CR51, CR52. When the altitude is greater than DH +50 feet, both inputs are a logic 0. With a logic 0 from OR gate TB2CR51, CR52, the positive dc DH voltage from the audio warn circuit is applied to the noninverting input of 425-foot DH comparator TB2U20A. The inverting input to TB2U20A is a positive dc voltage, which is proportional to 425 feet, from voltage divider TB2R101, R102. The output of TB2U20A is a negative dc voltage when the selected decision height is below 425 feet. The negative ac voltage is applied to 2-second timing circuit TB2C50, R105.

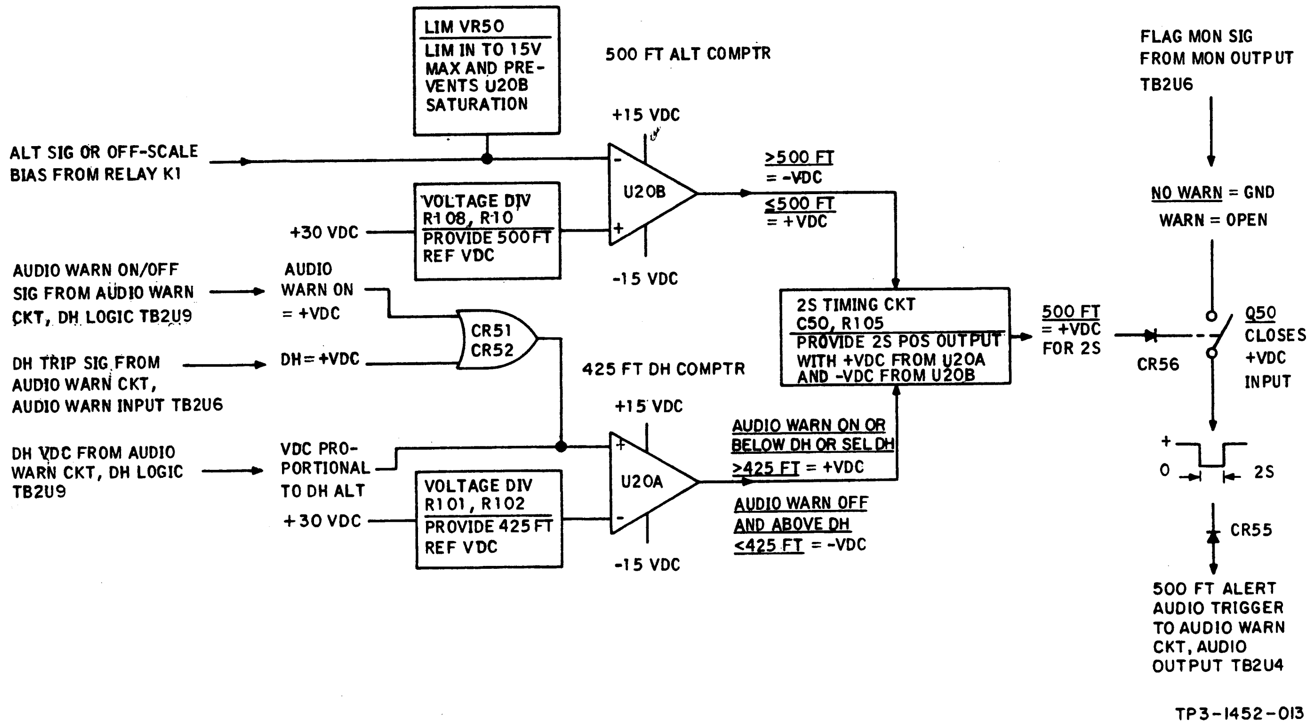
When the initial positive dc voltage from TB2U20B and a negative dc voltage from TB2U20A are applied to 2-second timing circuit TB2C50, R105, the circuit begins a a 2-second timing period that applies a positive dc voltage through TB2CR56 to switch TB2Q50. Switch TB2Q50 turns on and applies the ground, indicating a no warn condition, through TB2CR55 to the audio warn circuit. The negative-going, 2-second pulse triggers the audio warn circuit to produce a 2-second, 1-kHz audio tone.

When the indicator flag is in view (warn), the input to TB1Q50 is an open, and the negative-going trigger pulse to the audio warn circuit is removed.

When the selected decision height is above 425 feet, TB1U20A applies a positive dc voltage to the 2-second timing circuit. The positive dc voltage prevents the timing circuit from applying the 2-second, positive dc pulse to TB2Q50.

When either the audio warn on/off signal or the DH trip signal switches to a positive dc voltage, indicating that the audio warn is on or the decision height is reached, OR gate TB2CR51, CR52 applies a logic 1 to TB2U20A. The output of TB2U20A is a positive dc voltage that prevents the timing circuit from operating.

The 500-foot trigger pulse is prevented during climbout because of 2-second timing circuit bias.


LIM VR50
LIM IN TO 15V MAX AND PREVENTS U20B SATURATION
500 FT ALT COMPTR
+15 VDC
ALT SIG OR OFF-SCALE BIAS FROM RELAY K1
U20B
≥500 FT = -VDC
≤500 FT = +VDC
VOLTAGE DIV R108, R10
PROVIDE 500FT REF VDC
+30 VDC
-15 VDC
AUDIO WARN ON/OFF SIG FROM AUDIO WARN CKT, DH LOGIC TB2U9
AUDIO WARN ON = +VDC
CR51 CR52
DH TRIP SIG FROM AUDIO WARN CKT, AUDIO WARN INPUT TB2U6
DH=+VDC
425 FT DH COMPTR
+15 VDC
2S TIMING CKT
C50, R105
PROVIDE 2S POS OUTPUT WITH +VDC FROM U20A AND -VDC FROM U20B
500 FT = +VDC FOR 2S
DH VDC FROM AUDIO WARN CKT, DH LOGIC TB2U9
VDC PROPORTIONAL TO DH ALT
U20A
AUDIO WARN ON OR BELOW DH OR SEL DH ≥425 FT = +VDC
AUDIO WARN OFF AND ABOVE DH ≤425 FT = -VDC
VOLTAGE DIV R101, R102
PROVIDE 425FT REF VDC
+30 VDC
-15 VDC
FLAG MON SIG FROM MON OUTPUT TB2U6
NO WARN = GND
WARN = OPEN
CR56
Q50 CLOSES +VDC INPUT
+
0
2S
CR55
500 FT ALERT AUDIO TRIGGER TO AUDIO WARN CKT, AUDIO OUTPUT TB2U4
TP3-1452-013

500-Foot Alert Circuit, P/O TB2, CPN
522-4825-005, Functional Diagram
Figure 14

DISASSEMBLY

1. General

This section presents the instructions for disassembling the 339H-2 Radio Altitude Indicator. The 339H-2 should be disassembled only when necessary.

The disassembly procedures are in order of disassembly from the highest assembly to the lowest subassembly, part, or component.

Paragraph 2 provides the precautions and general techniques required during disassembly, paragraph 3 provides the extent of disassembly information, and paragraph 4 provides the detailed disassembly procedures.

2. Precautions and General Techniques

A. Perform disassembly of the 339H-2 Radio Altitude Indicator in a clean, controlled atmosphere.

B. Mark, or otherwise identify, all disconnected electrical wiring or component leads. Make note of color coding, placement of leads, and methods of applying insulation, when applicable, before unsoldering or removing electrical components.

C. Ensure that indicator is disconnected from all power or signal sources.

D. Use heat sink on all semiconductor device leads.

E. Loosen staking compound with staking compound thinner; refer to figure 201. Retaining compound, on threads of hardware that are inaccessible, can be loosened by applying heat from soldering iron to screwhead.

F. To facilitate reinstallation of gears on shafts, both gears and shafts should be marked with felt-tip marker.

3. Extent of Disassembly

Note: Before disassembly, if malfunction is suspected, inspect and test to determine cause and remedy.

The 339H-2 Radio Altitude Indicator does not require a complete overhaul at specific time intervals. Therefore, the extent of disassembly is only to the malfunctioning subassembly, part, or component that, when replaced, restores the indicator to operating condition.

4. Disassembly Procedures

A. General

The disassembly procedures are presented in a sequence that completely disassembles the indicator. Some disassembly procedures can be performed without performing all of the previous disassembly procedures. Therefore, only the procedures required to gain access to the part being replaced should be performed. Removal procedures for electrical components are not provided. Remove all electrical components using standard practices.

B. Removal and Disassembly of Case (Refer to IPL figure 1.)

(1) Loosen two setscrews (3) and remove control knob (2).

(2) Remove tape (5).

(3) Remove four screws (7) and two screws (8).

(4) Pull indicator forward out of case (6).

(5) Remove dial window (9).

(a) Place case (6) in oven and raise ambient temperature to between 100 and 212 °C (212 to 248 °F).

WARNING: HANDLE HEATED CASE WITH GLOVES TO PREVENT BURNS.

(b) Heat case until adhesive around dial window reaches state of plasticity to allow removal of dial window with light, steady finger pressure applied from outer surface of window.

(c) Remove dial window (9).

C. Separation of Mechanical Assembly and Electronic Subassembly

(1) Rotate two screws (46, IPL figure 2) 90 degrees with flat side horizontal and positioned to slide through slot in mounting plate (48).

(2) Loosen two screws (p/o 35, IPL figure 2), alternately, that secure connector J1 (35, IPL figure 2) and connector P1 (6, IPL figure 3).

(3) Remove connector J1 from connector P1.

(4) Separate mechanical assembly (14, IPL figure 1) from electronic subassembly (15, IPL figure 1).

D. Removal of Switch S1 and Switch Adapter (Refer to IPL figure 2.)

(1) Remove two screws (28).

(2) Remove switch S1 (26) and switch adapter (27).

E. Removal and Disassembly of DH Lens Assembly (Refer to IPL figure 2.)

(1) Push actuator (9) into switch molding (19) from rear of switch molding.

(2) Grasp DH lens assembly (2) and pull from switch molding.

(3) Disassemble DH lens assembly.

(a) Remove setscrew (4).

(b) Remove two lamps (5, 6).

(c) Remove retaining ring (10), printed wiring board (7), spring (8), gasket (14), and actuator (9).

F. Removal and Disassembly of DH Housing Assembly (Refer to IPL figure 2.)

(1) Remove two screws (20), lockwashers (21), flat washers (22), and remove DH housing assembly (15).

(2) Disassemble DH housing assembly.

(a) Remove two retaining rings (18), special switch contacts (16), and springs (17).

(b) Remove switch molding (19).

G. Removal of Lighting Assembly (Refer to IPL figure 2.)

(1) Remove two screws (24) and remove lamp shield (23).

(2) Slide lighting assembly (25) out of mounting (33).

H. Removal of Switch S1 Mounting Bracket and Light Mounting (Refer to IPL figure 2.)

(1) Remove two screws (30), lockwashers (31), and flat washers (32).

(2) Remove switch S1 mounting bracket (29).

(3) Remove four screws (34) and remove light mounting (33).

I. Removal of Flag Solenoid L1 (Refer to IPL figure 2.)

(1) Remove two screws (40) and remove flag clamp (39).

CAUTION: IN HANDLING FLAG SOLENOID L1, PREVENT DAMAGE TO FLAG AND CONNECTING ARM.

(2) Carefully slide flag out of slot in right pointer mask (44) and remove flag solenoid L1 (41).

NOTE: Perform step J only on 522-4825-002 indicators.

J. Removal of switch S2 (Refer to IPL figure 2.)

Remove nut (p/o 47) and remove switch S2 (47).

K. Removal of Lighting Wedge (Refer to IPL figure 2.)

CAUTION: USE CARE IN HANDLING LIGHTING WEDGE AND STORE IN A PROTECTED PLACE.

(1) Remove two clips (36, 37).

(2) Carefully slide lighting wedge (38) up out of indicator mask (42) and remove lighting wedge.

L. Removal of Indicator, Left Pointer, and Right Pointer Masks (Refer to IPL figure 2.)

(1) Remove four screws (45).

(2) Remove indicator mask (42), left pointer mask (43), and right pointer mask (44).

M. Removal of Left Gearplate and Bearings (Refer to IPL figure 2.)

(1) Remove two retaining rings (90).

(2) Push shaft (90) in from left gearplate (50) until shaft extends beyond right gearplate (249).

(3) Grasp shaft (90) and remove from right gearplate.

(4) Rock gear (106) and remove idler gear (89).

(5) Remove bearing (92) from idler gear.

(6) Rock gear (84) and remove idler gear (89).

(7) Remove bearing (88) from idler gear.

(8) Position mechanical assembly with right gearplate (249) down.

(9) Remove three screws (51), three screws (49), and one screw (59).

(10) Carefully remove left gearplate (50) with bearings installed.

(11) Remove one bearing (93), two bearings (60), one bearing (70), one bearing (111), one bearing (127), one bearing (183), and one bearing (119).

(12) Remove left gearplate (50).

N. Removal and Disassembly of Sprocket Assembly (Refer to IPL figure 2.)

(1) Pull sprocket holes of loosened altitude tape and decision height tape away from teeth of sprocket assembly (184).

CAUTION: REMOVE SPROCKET ASSEMBLY WITH CARE TO PREVENT DAMAGE TO ALTITUDE AND DH TAPES.

(2) Carefully remove sprocket assembly (184).

(3) Remove bearing (202).

(4) Disassemble sprocket assembly.

(a) Remove three screws (188).

(b) Remove spur gear (187), roller guide (189), sprocket wheel (190), main roller (191), and DH roller (192).

(c) Remove two screws (186) and spur gear (185).

(d) Remove two screws (194) and bearing support (193).

(e) Remove roller guide (195).

(f) Remove pin (p/o 196) and bearing retainer (p/o 196).

(g) Remove bearing (200).

(h) Remove three screws (197) and lockwashers (198).

(i) Remove differential (196) and retaining ring (199).

(j) Remove sprocket wheel (201).

O. Removal of Top and Bottom Tape Rollers (Refer to IPL figure 2.)

(1) Remove bottom DH tape roller (62) with bearing (61) installed.

(2) Remove bearing (61).

(3) Remove bearing (63), washer (64), bottom altitude tape roller (67), and shim (68).

(4) Remove bearing (69).

(5) Tag all parts to be reinstalled as bottom roller parts.

(6) Remove top DH tape roller (62) with bearing (61) installed.

(7) Remove bearing (61).

(8) Remove bearing (63), washer (64), top altitude tape roller (67), and shim (68).

(9) Remove bearing (69).

(10) Tag all parts to be reinstalled as top roller parts.

P. Removal of Tape Storage Roller Assemblies (Refer to IPL figure 2.)

(1) Wind loose tapes on either front or rear storage roller. Check that tape does not bind or twist.

(2) Remove both front and rear storage rollers with attached tape (storage roller assemblies) (70, 71) at same time.

NOTE: Further disassembly should not be performed; the tapes, storage rollers, and internal parts are replaceable as one assembly.

(3) Remove bearing (92) and bearing (110) from right gearplate (249).

Q. Removal and Disassembly of Gearshaft Assembly (Refer to IPL figure 2.)

(1) Remove gearshaft assembly (120).

(2) Disassemble gearshaft assembly.

  (a) Remove tapered pin (124) and gear (123).

  (b) Remove tapered pin (122) and gear (121).

  (c) Remove shaft (125).

(3) Remove bearing (126) from right gearplate (249).

R. Removal and Disassembly of Gear Cluster (Refer to IPL figure 2.)

(1) Remove gear cluster (112).

(2) Disassemble gear cluster.

(a) Remove tapered pin (114) and gear (113).

(b) Remove tapered pin (116) and gear (115).

(c) Remove shaft (117).

(3) Remove bearing (118) from right gearplate (249).

S. Removal of Bevel Gear (Refer to IPL figure 2.)

(1) Loosen two setscrews (139).

(2) Remove bevel gear (128).

T. Removal and Disassembly of Gearshaft (Refer to IPL figure 2.)

(1) Remove gearshaft (130).

(2) Disassemble gearshaft.

(a) Remove tapered pin (132).

(b) Remove gear (131) and shaft (133).

U. Removal of Variable Resistor R11 (Refer to IPL figure 2.)

(1) Loosen two setscrews (207).

(2) Loosen two screws (204) and rotate two rim clenching clamps (203) with flat side toward variable resistor R11 (206).

(3) Remove variable resistor R11 (206) and remove gear (208) from between middle gearplate (223) and right gearplate (249).

V. Removal of Variable Resistor R54 (Refer to IPL figure 2.)

(1) Loosen two setscrews (214).

(2) Loosen two screws (211) and rotate two rim-clenching clamps (210) with flat side toward variable resistor R54 (213).

(3) Remove variable resistor R54 (213) and remove gear (215) from between middle gearplate (223) and right gearplate (249).

W. Removal of Motor-Generator MG-1 (Refer to IPL figure 2.)

(1) Loosen two screws (219).

(2) Rotate rim clenching clamp (217) with flat side toward motor-generator MG-1 (221).

(3) Remove motor-generator MG-1.

X. Removal of Mounting Plate (Refer to IPL figure 2.)

(1) Remove three screws (49).

(2) Remove mounting plate (48).

Y. Removal of Middle Gearplate and Gear Train (Refer to IPL figure 2.)

(1) Remove setscrew (225).

(2) Remove screw (248) and post (247).

(3) Remove screw (226), lockwasher (227), shim washer (228), and flat washer (229).

(4) Carefully remove middle gearplate (223) from shafts of gear train.

(5) Remove three bearings (230) and remove middle gearplate (223).

(6) Remove gear cluster (242) and gear cluster (241).

(7) Remove assembled clutch, gears (239, 240).

(8) Remove three bearings (243).

(9) Disassemble clutch.

(a) Remove retaining ring (231).

(b) Remove washer (232), shim washer (233), and keyed washer (238).

(c) Remove gear (239) from gearshaft (240).

Z. Removal of Stop Assembly (Refer to IPL figure 2.)

(1) Remove two screws (156).

(2) Remove stop assembly (155) with attached parts.

AA. Removal of Right Gearplate (Refer to IPL figure 2.)

(1) Remove screw (64) and post (63).

(2) Remove screw (246) and post (245).

(3) Remove right gearplate (249).

AB. Removal of Variable Resistor R56 (Refer to IPL figure 2.)

(1) Remove nut (143).

(2) Remove variable resistor R56 (142).

AC. Removal of Holder Assembly (Refer to IPL figure 2.)

Remove two screws (146) and holder assembly (145).

AD. Removal of DH Counter (Refer to IPL figure 2.)

(1) Remove two nuts (138) and screws (139).

(2) Remove DH counter (137).

AE. Removal of DH Control Shaft Spring (Refer to IPL figure 2.)

(1) Remove dampener wire (154).

(2) Loosen four setscrews (151) and remove collar (150).

(3) Remove spring seat (152), spring (153), and spring seat (152).

(4) Remove assembled clutch washers (159) and clutch disc (160).

AF. Disassembly of Stop Assembly (Refer to IPL figure 2.)

(1) Loosen two setscrews (141) and remove bevel gear (140).

(2) Loosen four setscrews (162) and remove collar (161).

(3) Remove pin (173).

(4) Remove shaft (174), gear stop (176), and gear (175).

(5) Remove two bearings (177).

(6) Remove pin (165) and pin (164).

(7) Remove shaft (166), gear (170), gear (169), spring (168), and keyed washer (167).

(8) Remove bearing (171) and bearing (179).

(9) Remove mounting (182).

AG. Removal of Terminal Board TB1 (Refer to IPL figure 3.)

(1) Remove four screws (3).

(2) Remove terminal board TB1 (2).

AH. Removal of Terminal Board TB2 (Refer to IPL figure 3.)

(1) Remove four screws (5).

(2) Remove terminal board TB2 (4).

AI. Removal of Transformer T3 (Refer to IPL figure 3.)

(1) Remove two screws (8), lockwasher (9), lockwasher (10), and terminal (11).

(2) Remove transformer T3 (7).

AJ. Removal of Relays K1 and K2 (Refer to IPL figure 3.)

(1) Remove two screws (16); lockwashers (15), and nuts (14).

(2) Remove relay K1 (12).

(3) Remove two screws (16), lockwashers (15), and nuts (14).

(4) Remove relay K2 (13).

AK. Removal of Connector J2 (Refer to IPL figure 3.)

(1) Remove four nuts (18), lockwashers (19), and screws (20).

(2) Remove connector J2 (17).

AL. Removal of Rear Cover (Refer to IPL figure 3.)

(1) Remove two screws (22).

(2) Remove rear cover (21).

AM. Removal of Connector P1 (Refer to IPL figure 3.)

(1) Remove two nuts (p/o 6).

(2) Remove connector P1 (6).

CLEANING

1. General

Instructions are arranged alphabetically to facilitate use of the cleaning procedures. All parts requiring special cleaning methods are considered separately, and parts similar enough to permit identical cleaning methods are grouped together.

2. Cleaning Materials

The use of the word "solvent" in the following cleaning procedures refers to Stoddard solvent unless another solvent is specifically identified. Figure 201 provides a list of cleaning material with their use, the recommended manufacturer, and the manufacturer's designation. Substitutes may be used if they conform to the specification of the listed cleaning material.

The use of the words "air jet" in the procedures in this section refers to a hand-operated air nozzle supplied with clean, dry, compressed air at a maximum of 28 psig.

WARNING: USE CLEANING SOLVENTS UNDER A VENTILATED HOOD. AVOID BREATHING SOLVENT VAPORS AND FUMES. WEAR A MASK WHEN NECESSARY. AVOID CONTINUOUS CONTACT WITH SOLVENT. USE GOGGLES, GLOVES, AND APRON TO PREVENT IRRITATION FROM PROLONGED CONTACT. CHANGE CLOTHING UPON WHICH SOLVENTS HAVE BEEN SPILLED. OBSERVE ALL FIRE PRECAUTIONS FOR FLAMMABLE MATERIALS. USE THESE MATERIALS IN A HOOD PROVIDED WITH EXPLOSION-PROOF ELECTRICAL EQUIPMENT AND AN EXHAUST FAN WITH SPARKPROOF BLADES.

WEAR GOGGLES WHEN USING AN AIR JET TO BLOW DUST AND DIRT FROM EQUIPMENT. WARN OTHER PERSONS AWAY FROM HAZARDOUS AREA OR WORK ENCLOSURE.

NOTE: An ultrasonic cleaner, such as the Alcore Instrument Company model 3100 Ultrasonic Cleaner, can be used to clean the metal gears and other small metal parts. Refer to the instructions supplied with the ultrasonic cleaner for uses and procedures. Use drying methods described for manual cleaning of the part.

MATERIAL	USE	RECOMMENDED TYPE	
		MANUFACTURER	MANUFACTURER'S DESIGNATION
Solvent, Stoddard	General cleaning	Fisher Scientific Co. or Ashland Chemical Co.	
Solvent, trichlorotrifluoroethane	Cleaning printed switches	E. I. DuPont De Nemours & Co., Inc. or Allied Chemical Corp.	Freon PCA Genesolv D, electronic grade
Solvent, ultrasonic cleaning	Cleaning rotor and brush ring in ultrasonic cleaner	E. I. Du Pont De Nemours & Co., Inc. or Allied Chemical Corp.	Freon T-E 35 Genesolv DE-35
Solvent, heptane	Cleaning rotor and brush ring manually	Any commercial	
or Solvent, cleaning	Cleaning rotor and brush ring manually	Cobehn Inc.	Spray clean
Cloth, lintless cotton	General cleaning	Any commercial	
Paper, lens	General cleaning, use in place of lintless cotton cloth	Kimberly-Clark Corp. or Fort Howard Paper Co.	Kimwipe Shurwipe
Brush, soft bristle	General cleaning	Any commercial	
Brush, fiber glass	Cleaning rotor commutator	Any commercial	
Solvent, methyl alcohol	Cleaning light soil and fingerprints off case	Any commercial	
Solvent, cleaning	Cleaning altitude tape	E. I. Du Pont De Nemours & Co., Inc. or Allied Chemical	Freon TF (CPN 005-1185-010)
Solvent, cleaning	Cleaning altitude tape	Any commercial	Isopropryl Alcohol

Cleaning Materials
Figure 201

3. Procedure

A. Bearings, Unsealed

Bearings should be replaced when removed during repair or overhaul.

B. Bearings, Sealed

Sealed bearings require no cleaning or lubrication, since they are lubricated by the manufacturer for lifetime operation. It is recommended that defective sealed ball bearings be replaced.

C. Case

(1) Clean using applicable steps of procedures for cleaning castings. Refer to paragraph D.

(2) Using a clean, lintless cloth, moistened with methyl alcohol solvent, wipe exterior of case to remove light soil, smudges, and/or fingerprints.

D. Castings

Castings should be cleaned as follows:

(1) Remove surface grease with rags.

(2) Blow dust from surfaces, holes, and recesses with air jet.

(3) Immerse casting in solvent, and scrub until clean. Scrub all surfaces. Scrub all holes and recesses with a suitable nonmetallic brush. Flat, woodbacked brushes with soft fiber bristles are recommended for surfaces; round brushes, like those used for washing bottles and test tubes, are recommended for holes and recesses.

(4) Raise casting from solvent and permit to drain.

(5) Immerse in clean solvent, rinse, and raise from solvent. Position casting so solvent is not trapped in holes or recesses and allow to drain until dry. When positioning does not permit complete draining, use air jet to blow out any trapped solvent.

(6) When dry, touch up any minor damage to finish. Major damage to finish may require refinishing.

(7) Protect casting from dust and moisture pending inspection.

E. Chassis, Wired

The following cleaning procedure should be used for chassis containing terminal boards, resistors, capacitors, switches, transformers, relays, and other wired parts and components.

CAUTION: AVOID AIR-BLASTING LEADS AND DELICATE PARTS BY HOLDING AIR JET NOZZLE TOO CLOSE. USE BRUSHES ON DELICATE PARTS WITH CARE.

NOTE: When it is necessary to disturb the dress of wiring and cables, dressing should be noted and wiring and cables restored to dress after cleaning is completed.

(1) Remove dust and dirt from all surfaces, including parts and wiring, using soft-bristled brushes in conjunction with air jet.

(2) Clean connectors with a minimum disturbance of wiring, as prescribed in paragraph F.

(3) Clean ceramic or plastic insulators as prescribed in paragraph H.

(4) Wipe all finished surfaces with a lintless cloth moistened with solvent.

(5) Dry and polish finished surfaces, using a clean, dry, lintless cloth.

(6) Protect chassis from dust, moisture, and damage pending inspection.

F. Connectors

(1) Wipe dust and dirt from bodies, shells, and cable clamps using lintless cloth moistened with solvent. Dry with a clean, dry, lintless cloth.

(2) Remove dust from inserts using a small soft-bristled brush and air jet.

CAUTION: KEEP SOLVENT OUT OF SLEEVES OR CONDUIT COVERING ANY WIRES OR CABLES CONNECTED TO CONTACT TERMINALS OF THE INSERT.

(3) Wash dirt and any traces of lubricant from inserts, insulation, and contacts using solvent applied sparingly with a small camel-hair brush.

(4) Dry insert with air jet.

G. Gears, Metal and Fiber

NOTE: If gear trains are disassembled, the gears should be cleaned.

(1) Metal Gears

Clean, using applicable steps of procedures for cleaning castings. Refer to paragraph D.

(2) Fiber Gears

(a) Remove all surface dust and dirt, using a soft-bristled brush and an air jet.

(b) Clean gears, using a clean, lintless cloth moistened with solvent.

(3) Nylon or Nylon-Composition Gears

CAUTION: SOLVENT SHOULD NOT BE USED TO CLEAN NYLON OR NYLON-COMPOSITION GEARS.

(a) Prepare washing bath of 2 ounces of detergent to one gallon of water.

(b) Clean gears, using soft-bristled brush.

(c) Wipe gear dry, using a clean, lintless cloth.

(4) Epoxy-Composition Gears

CAUTION: USE SOLVENT SPARINGLY AND DRY IMMEDIATELY AFTER CLEANING TO PREVENT SOFTENING OF GEARS.

(a) Clean gears, using brush dipped in solvent. Dry immediately.

(b) Wipe gear dry, using a clean, lintless cloth.

H. Insulators, Ceramic and Plastic

Clean all ceramic insulators and plastic standoff insulators as follows:

(1) Wipe dust and dirt from insulators, using a clean, lintless cloth moistened with solvent.

(2) Dry and polish insulators, using a clean, lintless cloth.

I. Machined Metal Parts

Detached shafts, keys, pins, collars, worms, springs, and similar machined parts should be cleaned in a cleaning machine, if available; otherwise, proceed as follows:

CAUTION: AVOID TOUCHING ANY MACHINED OR FINISHED SURFACES WITH BARE HANDS AFTER CLEANING TO PREVENT CORROSION.

(1) Use procedures listed in steps (1), (3), (4), and (5) of paragraph D and step (2) of this paragraph.

(2) Dry in dust-free, dry area. Radiant heat used in a ventilated enclosure is recommended for drying, particularly if humidity is high.

J. Mechanical Metal Parts

Detached miscellaneous mechanical metal parts include ventilating grilles, mounting plates, mounting clamps and brackets, nuts, bolts, screws, washers, handles, fasteners, and hardware. These parts should be cleaned in a cleaning machine or according to applicable steps of procedures for castings. Refer to paragraph D.

K. Molded Plastic Parts

Plastic parts include insulating members, terminal boards, mounting blocks, etc. These parts should be cleaned in the following manner:

(1) Blow loose dust and dirt from surfaces, holes, and crevices with air jet.

(2) Wipe dirt and dust from parts, using a lintless cloth moistened with solvent.

(3) Dry and polish parts, using a clean, dry, lintless cloth.

L. Tapes

Common grime on the tape can be cleaned with water or a windex-type cleaner. If the tape does not become sufficiently clean, use Freon-TF, following general shop procedures for the use of the solvent.

If using these methods fails to clean the tape, apply Isoproprуl alcohol in a dabbing motion.

WARNING: AVOID RUBBING AS MUCH AS POSSIBLE AND KEEP THE TIME OF CONTACT BETWEEN THE ALCOHOL AND THE TAPE AS SHORT AS POSSIBLE.

INSPECTION/CHECK

1. General

Inspection reveals defects that result from wear, damage, deterioration, or other causes. Detailed inspection procedures are arranged alphabetically. Wear tolerances are listed in the Fits and Clearances section of this manual where applicable. Refer to the Repair section of this manual for replacement of defective parts.

2. Procedures

A. Bearings

The following inspection procedures apply to all ball bearings in this equipment. The bearing is inspected to determine whether it is serviceable. Defective bearings must be replaced.

CAUTION: ALL INSPECTIONS REQUIRE THE UTMOST CLEANLINESS. WEAR RUBBER GLOVES OR FINGER COTS WHEN HANDLING BALL BEARINGS TO PREVENT CORROSION.

(1) Check for blue or purple discoloration (from overheating) of any part of the bearing.

(2) Check for tarnished outer surfaces (indicated by a discoloration of highly finished surfaces).

(3) Check for rust.

(4) Check for pitted, scarred, scuffed, or balled surfaces of bearings and races.

(5) Check for broken shields and all other abnormal conditions.

(6) Check for nonuniform noises such as clicks, buzzes, and vibration originating in the bearing while the bearing is rotated. A used but serviceable bearing develops a certain amount of noise but not the noises being checked. Install bearing on a bearing holder and spin the bearing manually with a gloved finger. Hold the bearing in several positions while making check, and listen for any vibration or intermittent resistance.

B. Capacitors

Inspect capacitors for defects listed in figure 301.

DEFECT	METAL TYPE	MOLDED TYPE	CERAMIC TYPE
Leakage of electrolyte (at case seams or around terminal insulation)	X		
Cracked, broken, or charred terminal insulation	X		
Case damage (dents or holes)	X		
Case damage (cracks or breakage)		X	
Loose, broken, or corroded terminal studs, lugs, or leads	X	X	X
Loose, broken, or poorly soldered connections	X	X	X

Fixed-Capacitor Inspection
Figure 301

C. Case

Inspect case for punctures, dents, worn surfaces, corrosion, and damage that requires work in the finishing department.

D. Chassis

Inspect chassis for deformation, dents, punctures, worn surfaces, damaged connectors, damaged fastener devices, or damaged handles. Inspect for corrosion and damage to finish that requires work in finishing department.

E. Connectors

Inspect connector bodies for broken parts, deformed shells or clamps, and other irregularities. Inspect for cracked or broken insulation and for contacts that are broken, deformed, or out of alignment. Inspect for corroded or damaged plating on contacts and for loose, poorly soldered, broken, or corroded terminal connections.

F. Gaskets and Seals

Inspect gaskets and seals for deformation, tears, creases, rough surfaces, and imbedded foreign matter.

G. Gears, Metal or Fiber

(1) Inspect all gears for broken, chipped, or worn teeth.

(2) Inspect gear bodies for cracks and deformation.

(3) Inspect bore of gear for wear. Presence of a sharp burr on one side of gear at edges of teeth is an indication of wear.

(4) Inspect surfaces for corrosion or other abnormal conditions.

H. Insulators, Ceramic or Plastic

Inspect ceramic or plastic insulators for broken or chipped edges, burned areas, or foreign material.

I. Machined Metal Parts

Inspect for damage to surfaces, corners, and edges. Inspect all machined surfaces, holes, bores, counterbores, slots, grooves, shoulder flanges, teeth, tapped holes, and all threaded members, both male and female, for roughness of surface, corrosion, or foreign matter. Inspect plated or finished areas for damage requiring replating or refinishing beyond touchup repair.

J. Mechanical Metal Parts

Inspect unmachined mechanical metal parts, including mounting plates, chassis, mounting clamps and brackets, nuts, bolts, screws, washers, handles, fasteners, and hardware, for damage or deformation. Inspect for corrosion and any damage that would require replating or refinishing beyond practical touchup.

K. Molded Plastic Parts

Inspect plastic parts, such as terminal boards, mounting blocks, and insulating members, signs of corrosion, cracked or charred insulation, and loose or missing mounting hardware.

L. Receptacles

Inspect receptacles for cracked, broken, or charred insulation. Inspect for loose or bent contacts, damage to contact plating, corrosion, and other abnormal conditions.

M. Relays

Check for signs of overheating or malfunction. Check for loose or broken terminals and corrosion. Inspect attaching hardware for looseness, damage, or corrosion.

N. Resistors

Inspect fixed composition resistors for cracked, broken, blistered, or charred bodies and loose, broken, poorly soldered, or corroded terminal connections.

Inspect fixed wire-wound resistors for signs of heating; cracked, broken, or charred insulation; loose, poorly soldered, broken, or corroded terminal connections; and loose mounting.

O. Semiconductors

Inspect diodes and transistors for cracked, broken, blistered, or charred bodies. Inspect for loose, broken, poorly soldered, or corroded terminal connections.

P. Soldered Terminal Connections

Inspect soldered terminal connections for cold-soldered or resin joints. These joints present a porous or dull, rough appearance. Check for strength of bond, using the point of a tool. Examine for excess of solder, protrusions from the joint, pieces adhering to adjacent insulation, and particles lodged between joints, conductor, or other parts. Inspect for insufficient solder and unsoldered strands of wire protruding from conductor at joint. Also, look for insulation that is stripped back too far from joint or badly frayed at joint. Inspect for corrosion (verdigris) on copper conductor at the joint.

Q. Transformers

Inspect transformers for signs of heating, damage to case, cracked or broken ceramic insulators, and other abnormal conditions. Inspect for corroded, poorly soldered, or loose terminals and loose, broken, or missing mounting hardware.

R. Wiring

Inspect open and laced wiring of chassis, terminal boards, and parts of equipment by checking insulation for damage and charring. Inspect wires for breakage and for improper dress in relation to adjacent wiring and chassis.

REPAIR

1. General

Faulty parts are detected through procedures in the Inspection/Check or Testing sections of this manual. If a new part is to be installed, it should first be inspected and tested.

Most of the repair or replacement instructions apply to the disassembled equipment. Refer to the Disassembly section for instructions.

2. Procedures

A. Bearings

Replace all defective ball bearings with new bearings.

B. Case

Straighten any dents or warped sections and retouch scratched or worn painted surfaces.

C. Capacitors

If defective or suspected of causing difficulties, capacitors must be replaced. Clean all connections and apply new solder.

D. Connectors

Straighten bent pins and damaged shell areas. Replace bad connections, broken wires, or wires with split insulation. If connector insert is broken, replace connector.

E. Motor-Generator

Refer to Electromechanical Components Overhaul Manual, Collins part number 523-0757895, for overhaul and testing motor-generator MG-1.

F. Frame

Straighten damaged areas. Remove all corrosion. Retouch silk screening and refinish where needed.

G. Gears, Metal and Fiber

Replace metal or fiber gears found to be defective in inspection or testing. Instructions are given in Assembly and Disassembly sections. On indicators with CPN 522-4825-002 and 522-4825-004 with MCN 1112 and below, the nylon gear on two gear clusters (241, 242, IPL, fig 2) can split or break causing inaccurate coupling to gear train and/or gear train lockup. These gears should be replaced with new gear clusters of the same part number but manufactured with a thicker gear that is staked to a metal hub. Refer to Service Bulletin No 4 for details.

H. Relays

Replace as required.

I. Resistors

Replace defective resistors and carefully resolder bad connections.

J. Semiconductors

Use a heat sink while applying heat to the leads of a semiconductor.

K. Soldered Terminal Connections

Resolder cold-solder or resin joints. Remove all traces of corrosion.

L. Transformers

Replace or resolder as required.

M. Wiring

Replace damaged wiring with wire of same size and color code. Ensure that no bare wires are touching chassis, other bare wires, or metal cases of other parts.

If any wire is to be removed from a terminal or component, mark with an indication tag to prevent incorrect connections.

NOTE: When necessary to disturb the dress of the wires, ensure that the original wire dress is maintained when replacing wires.

ASSEMBLY

1. General

Precautions and general techniques are presented in paragraph 2. Special techniques, notes, cautions, and warnings are presented in the assembly procedures.

2. Precautions and General Techniques

CAUTION: USE A HEAT SINK ON THE LEADS WHEN REPLACING A SOLID-STATE DEVICE.

A. Reconnect all wiring after installing each component or part. Before soldering any part or lead, refer to the notes of color coding, placement of leads, and wire insulation made during disassembly.

B. All soldering must be performed in accordance with MIL-S-6872 using rosin-core solder, Federal Specification QQ-S-5716, composition Sn60.

C. Replace any defective wiring with wire of the same size and color coding.

D. Lace all electrical harness and tie at all breakouts. Laces should be 1/2 inch apart. Use dacron lacing cord, approved nonwaxed lacing cord, or straps.

E. Liquid stake all screws so indicated with staking compound (figure 501).

F. Install all retaining rings and washers with the burr side away from the bearing surface.

G. Align all gears with marks made during disassembly to facilitate alignment of gear with pin holes in shaft.

3. Extent of Assembly Required

The 339H-2 Radio Altitude Indicator does not require complete overhaul at specified time intervals. Therefore, the extent of assembly required is dependent on the amount of disassembly performed.

4. Lubrication and Sealing Data

Figure 501 lists the lubricants, adhesives, sealants, and retaining compounds required during overhaul of the indicator. The nomenclature, manufacturer, manufacturer's designation, use, and Collins part number are provided. The lubricant listed must be used when designated during the assembly procedures. Substitute lubricants are not recommended because of possible incompatability or contamination of lubricants.

ITEM	MANUFACTURER	MANUFACTURER'S DESIGNATION	USE	COLLINS PART NUMBER
Activator	Armstrong Products Co.	Activator E	Bond clutch washers to clutch disc	005-0419-000
Adhesive	Armstrong Products Co.	A-2. Adhesive	Bond clutch washers to clutch disc	005-0325-000
Adhesive	Minnesota Mining & Mfg. Co.	EC-1357	Retain wire dampener	005-0474-000
Instrument lubricating oil	Panef Mfg. Co.	UNIVIS P-38	Lubricate DH control shaft clutch	005-0392-000
Retaining compound	Loctite Corp.	Sealant, Grade D	Retain parts	005-0552-000
Retaining compound primer	Loctite Corp.	Primer, Grade N	Primer for retaining compound	005-0549-000
Sealant	Coast Pro-Seal and Mfg. Co.	Pro-seal 247B-2*	Install dial window	005-0605-000
Sealing tape	Minnesota Mining & Mfg. Co.	850-3/4 inch	Seal joint between rear cover and case	004-1198-000
Silicon grease	General Electric Co.	Versilube G-300	General lubrication	005-0564-000
Staking compound	General Electric Co.	Gylptal 7526F	Stake hardware	005-0133-000
Staking compound thinner	General Electric Co.	Glyptal thinner 1505	Loosen staking compound	005-0164-000

Lubricants and Sealants
Figure 501

5. Detailed Assembly Procedures

A. Installation of Connector P1 (Refer to IPL figure 3.)

(1) Install connector P1 (6) in mounting subassembly (24).

(2) Install two nuts (p/o 6).

B. Installation of Rear Cover (Refer to IPL figure 3.)

(1) Install rear cover (21) on mounting subassembly (24).

(2) Install two screws (22).

C. Installation of Connector J2 (Refer to IPL figure 3.)

(1) Install connector J2 (17) in rear cover (2).

(2) Install four screws (20), lockwashers (19), and nuts (18).

D. Installation of Relays K1 and K2 (Refer to IPL figure 3.)

(1) Position relay K1 (12) on rear cover (2) and install two screws (16), lockwashers (15), and nuts (14).

(2) Position relay K2 (13) on rear cover (2) and install two screws (16), lockwashers (15), and nuts (14).

E. Installation of Transformer T3 (Refer to IPL figure 3.)

(1) Install transformer T3 (7) in mounting subassembly (24).

(2) Install terminal (11), lockwasher (10), and nut (8). Terminal must be parallel to subassembly side.

(3) Install lockwasher (9) and screw (8).

F. Installation of Terminal Board TB2 (Refer to IPL figure 3.)

(1) Position terminal board TB2 (4) on mounting subassembly (24).

(2) Install four screws (5).

G. Installation of Terminal Board TB1 (Refer to IPL figure 3.)

(1) Position terminal board TB1 (2) on mounting subassembly (24).

(2) Install four screws (3).

H. Assembly of Stop Assembly (Refer to IPL figure 2.)

(1) Clean bearing holes in mounting (182) with trichlorotrifluoroethane solvent (figure 201).

(2) Clean inner flange surface and outside diameter, that seats in mounting (182), of two bearings (177), one bearing (179), and one bearing (171) with retaining compound primer (figure 501).

CAUTION: KEEP RETAINING COMPOUND OUT OF BEARINGS.

(3) Apply a light coating of retaining compound (figure 501) to outside diameter of two bearings (177), one bearing (179), and one bearing (171). Apply only to surface that seats in mounting (182).

(4) Install two bearings (177), one bearing (179), and one bearing (171).

(5) Place mounting with installed bearings in oven for 20 minutes at 70 °C (158 °F).

(6) Insert shaft (166) into bearing (171); push shaft in far enough to install gears (169, 170).

(7) Install gear (170) and gear (169).

(8) Load spring (168) and keyed flat washer (167) in pliers and compress.

(9) Position loaded spring with washer in mounting (182), and install shaft (166) through spring and washer with flat surface in washer engaging flat surface on shaft.

(10) Install shaft (166) in bearing (179).

(11) Align gear (169) and gear (170) with pin holes on shaft.

(12) Install tapered pin (164) in gear (169).

(13) Install pin (165) in gear (170) until 0.105 to 0.109 inch of pin extends from surface of bearing hub.

(14) Install shaft (174) through front bearing (177) (bearing on side of casting with DH counter mounting flange) far enough to install gear stop (176).

(15) Install gear stop (176) on shaft (174), and mesh with gear (170) so that stop points out and is perpendicular with side of mounting (182).

(16) Install gear (175) on shaft (174), align pin hole on shaft, and mesh with gear (169).

(17) Install shaft (174) in rear bearing (177).

(18) Rotate shaft (166) in either direction to stop.

(19) Rotate shaft (166) in reverse direction, counting number of turns to stop. Shaft must rotate 13-3/4 turns; if not, remove shaft and remesh gear stop until required number of turns is obtained.

(20) Align gear (175) on shaft (174) with pin hole in shaft and install tapered pin (173).

(21) Bond two clutch washers (159) to clutch disc (160) as follows:

  (a) Using a mixture of 100 parts of adhesive (figure 501) to 6 parts of activator (figure 501), bond two clutch washers to clutch disc.

  (b) Place in oven for 45 minutes at 93 °C (200 °F).

  (c) Soak in instrument lubricating oil (figure 501) for 5 minutes.

  (d) Wipe off excess instrument lubricating oil.

(22) Start four setscrews (162) in collar (161).

(23) Install collar (161) on shaft (166) with 3/32-inch clearance between collar and mounting (182). Tighten four setscrews (162).

(24) Install bonded clutch disc (160) on shaft (166) with tab of clutch disc between two pins (181).

(25) Install spacer (157) and secure with spring pin (158).

I. Installation of DH Control Shaft Spring (Refer to IPL figure 2.)

(1) Install spring seat (152), spring (153), and spring seat (152) on shaft (166).

(2) Start four setscrews (151) in shaft collar (150).

(3) Install shaft collar on shaft (166) and push to partially compress spring (153). Tighten one setscrew (151).

(4) Install dampener wire (154) over clutch disc tab and in two pins (181).

(5) Apply adhesive (figure 501) to wire dampener and two pins (181).

J. Installation of DH Counter (Refer to IPL figure 2.)

(1) Apply staking compound (figure 501) to threads of two screws (137).

(2) Position DH counter (137) on mounting (182) and install two screws (139) and nuts (138).

(3) Apply silicone grease (figure 501) to shaft of DH counter.

(4) Start two setscrews (136) in gear (135).

(5) Install gear (135) on shaft of DH counter and tighten one setscrew (136).

K. Installation of Holder Assembly (Refer to IPL figure 2.)

(1) Position holder assembly (145) on mounting (182) and install two screws (146).

(2) Apply staking compound (figure 501) to heads of two screws (146).

L. Installation of Variable Resistor R56 and Resistor R55 (Refer to IPL figure 2.)

(1) Install nut (143) on variable resistor R56 (142). Nut must be installed against body of variable resistor.

(2) Install variable resistor R56 in holder assembly (145) and install nut (143).

(3) Apply staking compound (figure 501) to threads of variable resistor and nut.

(4) Install resistor between terminals on bottom of holder assembly.

(5) Connect variable resistor yellow and red leads to terminal closest to variable resistor on top of holder assembly.

(6) Connect variable resistor green lead to center terminal on top of holder assembly.

M. Installation of Posts on Right Gearplate (Refer to IPL figure 2.)

(1) Install post (245) with notch parallel to rear edge of right gearplate (249) and secure with screw (246).

(2) Install post (63) on left gearplate and secure with screw (64).

(3) Apply staking compound (figure 501) to heads of screw (246) and screw (64).

N. Installation of Stop Assembly (Refer to IPL figure 2.)

(1) Install stop assembly (155) on right gearplate (249) and secure with two screws (156).

(2) Apply silicone grease (figure 501) to shaft (174) extending out front of stop assembly.

(3) Start two setscrews (141) in bevel gear (140).

(4) Install bevel gear (140) on shaft (174) and snug down two setscrews (141).

(5) Apply staking compound (figure 501) to heads of two screws (156).

O. Installation of Gear Train and Middle Gearplate (Refer to IPL figure 2.)

(1) Assemble clutch gearshaft.

(a) Install gear (239) on gearshaft (240).

(b) Install keyed washer (238), shim washer (233), spring tension washer (232) and retaining ring (231).

(c) Check torque of gear (239) in relation to gearshaft (240) with torque watch (figure 1001). Torque must be 2-1/2 to 6 inch-ounces. If torque is not correct, disassemble and add or replace shim washer (218) with shim washers (234 through 237) as required to obtain correct torque.

CAUTION: ALL PARTICLES OF ELECTROFILM THAT FLAKE OFF DURING 100-TURN ROTATION MUST BE REMOVED TO PREVENT CONTAMINATION.

(d) Hold gearshaft (240) and rotate gear (239) a minimum of 100 turns. Clean gearshaft and gear of all particles of electrofilm.

(2) Install three bearings (243) in right gearplate (249).

(3) Install gear cluster (241) in bearing (243).

(4) Install gear cluster (242) in bearing (243) and mesh with gear cluster (241).

(5) Install assembled clutch, gears (239 and 240), in bearing (243) and mesh gear (239) with gear cluster (241).

(6) Check for 0.005-inch clearance between gears. If clearance is less, install shims as required to obtain correct clearance.

(7) Install three bearings (230) in middle gearplate (223).

CAUTION: SILICONE GREASE AND ELECTROFILM BETWEEN GEAR (239) AND GEARSHAFT (240) ARE INCOMPATIBLE. USE CARE TO PREVENT GREASE FROM CONTACTING ELECTROFILM.

(8) Apply a light coating of silicone grease (figure 501) to gear teeth and wipe off excess.

(9) Install spacer (244) on post (245).

(10) Install post (247) on right gearplate (249) and secure with screw (248).

(11) Apply staking compound (figure 501) to head of screw (248).

(12) Carefully install middle gearplate (223) on right gearplate (249) and ensure that gearshafts are seated in bearings.

(13) Install setscrew (225) and tighten in notch of post (245).

(14) Install flat washer (229), shim washer (228), lockwasher (227), and screw (226).

(15) Install post (222) and secure with screw (224).

(16) Apply staking compound (figure 501) to head of screw (224).

P. Installation of Motor-Generator MG-1 (Refer to IPL figure 2.)

(1) Apply silicone grease (figure 501) to mounting surface of motor-generator MG-1 (221). Wipe off excess.

(2) Install motor-generator MG-1 on middle gearplate (223) with leads toward top of gearplate and mesh with gear cluster (242).

(3) Install one rim clenching clamp (218), one rim clenching clamp (217), two lockwashers (220), and two screws (219). Flat side of clamp (217) must be perpendicular to edge of middle gearplate.

Q. Installation of Variable Resistor R54 (Refer to IPL figure 2.)

(1) Apply silicone grease (figure 501) to mounting surface and shaft of variable resistor R54 (213). Wipe off excess.

(2) Start two setscrews (214) in shaft collar (216).

(3) Install shaft collar on gear (215). A light coating of silicone grease may be used to facilitate assembly; but collar and gear must be thoroughly cleaned of grease before installation.

(4) Position gear (215) between middle gearplate (223) and right gearplate (249). Install variable resistor R54 (213) on middle gearplate (223) and gear (215).

(5) Install two rim clenching clamps (210), lockwashers (212), and screws (211). Adjust clamps with flat side away from variable resistor R54.

(6) Rotate variable resistor R54 until terminals A, C, and D are toward top of gearplates at 11 o'clock position.

(7) Tighten two screws (211).

(8) Mesh gear (215) with gearshaft (240) and tighten two setscrews (214).

R. Installation of Variable Resistor R11 (Refer to IPL figure 2.)

(1) Apply silicone grease (figure 501) to mounting surface and shaft of variable resistor R11 (206). Wipe off excess.

(2) Install bushing (209) in gear (208) and position with slit in bushing opposite setscrew holes.

(3) Start two setscrews (207) in gear (208).

(4) Position gear (208) between middle gearplate (223) and right gearplate (249). Install variable resistor R11 (206) on middle gearplate and gear (208).

(5) Install two rim clenching clamps (203), lockwashers (205), and screws (204). Adjust clamps with flat side away from variable resistor R11 and tighten two screws (204).

(6) Tighten two setscrews (207).

S. Installation of Gearshaft With Attached Bevel Gear (Refer to IPL figure 2.)

(1) Assemble gearshaft (130).

  (a) Install gear (131) on shaft (133) and align pin holes.

  (b) Install tapered pin (132).

  (c) Apply light coating of silicone grease (figure 501) to shaft (133). Wipe off excess.

  (d) Start two setscrews (139) in bevel gear (128).

  (e) Install bevel gear (128) on shaft (133) and position 1/2 inch from end of shaft. Tighten two setscrews (139).

(2) Install bearing (134) in right gearplate (249).

(3) Install gearshaft (130) with attached bevel gear (128) in bearing (134) and mesh gear (131) with variable resistor R11 gear (208).

(4) Loosen two setscrews (207) on variable resistor R11 gear (208) and adjust position of gear (208) to mesh with gear (131). Tighten two setscrews (207).

T. Assembly and Installation of Gear Cluster (Refer to IPL figure 2.)

(1) Assemble gear cluster (112).

  (a) Install gear (115) on shaft (117) and align pin holes.

  (b) Install tapered pin (116).

  (c) Install gear (113) on shaft (117) and align pin holes.

  (d) Install tapered pin (114).

(2) Install bearing (118) in right gearplate (249).

(3) Install gear cluster (112) in bearing (118) and mesh gear (115) with gear (131).

U. Assembly and Installation of Gearshaft Assembly (Refer to IPL figure 2.)

(1) Assemble gearshaft assembly (120).

(a) Install gear (121) on shaft (125) and align pin holes.

(b) Install tapered pin (122).

(c) Install gear (123) on shaft (125) and align pin holes.

(d) Install tapered pin (124).

(2) Install bearing (126) in right gearplate (249).

(3) Install gearshaft assembly (120) in bearing (126) and mesh gear (123) with gear (131). Mesh gear (121) with DH counter gear (135).

V. Installation of Tape Rollers (Refer to IPL figure 2.)

(1) Install two bearings (74) in right gearplate (249).

(2) Install two main tape rollers (72) in two bearings (74).

(3) Install two bearings (66) in two tape rollers (67).

(4) Install two bearings (68) in two tape rollers (67).

(5) Install two washers (69) and two rollers (67) on two main tape rollers (72).

(6) Install shims (73) as required to adjust clearance between washer (69) and tape roller (67) on two tape rollers for a minimum of 0.002 inch.

W. Installation of Tape Storage Roller Assembly (Refer to IPL figure 2.)

NOTE: High altitude end of altitude tape is attached to front storage roller; low altitude end of tape is attached to rear storage roller.

(1) Install bearing (92) and bearing (110) in right gearplate (249).

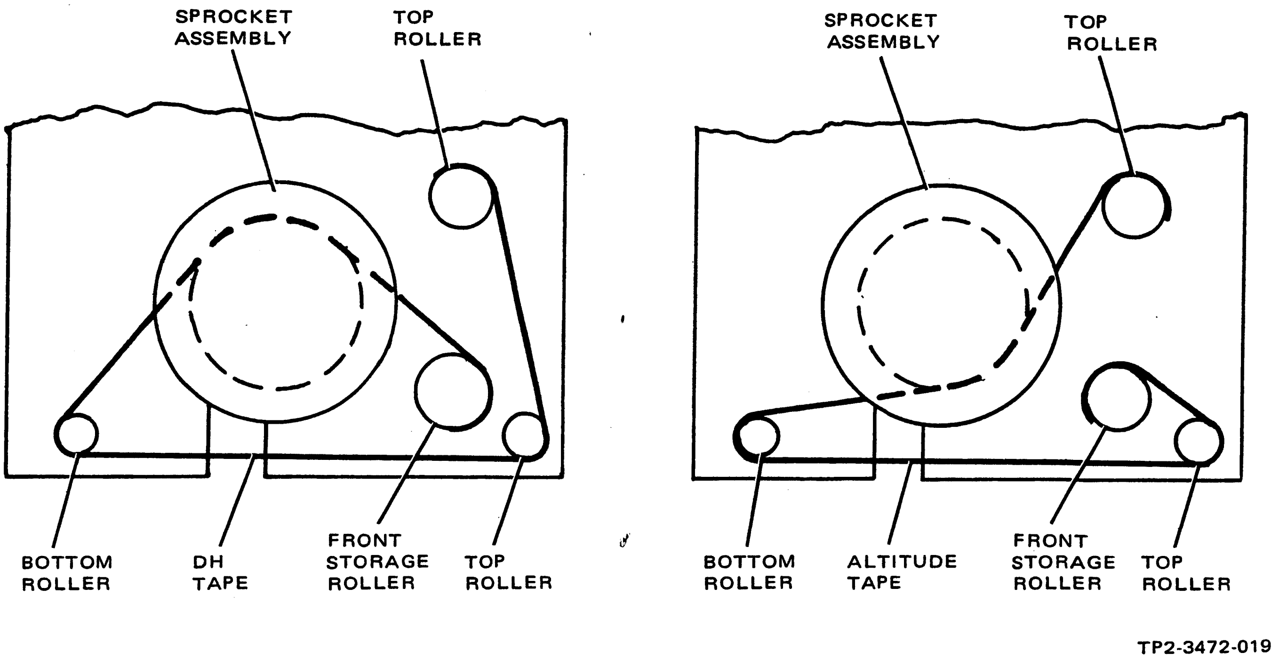
(2) Remove any twists in the DH tape and the altitude tape.

(3) Install rear storage roller in bearing (110) and front storage roller in bearing (92).

(4) Thread DH (narrow) tape from front storage roller (85) behind post (63), under lower tape roller (67), over top tape roller (67) to rear storage roller (97). Refer to figure 502.

(5) Thread altitude tape from front storage roller (79) forward over top tape roller (72), under lower tape roller (72), in front of post (63) to rear storage roller (103). Refer to figure 502.

(6) Check both tapes and remove any twists.



DH and Altitude Tapes, Installation
Figure 502

X. Assembly and Installation of Sprocket Assembly (Refer to IPL figure 2.)

(1) Assemble sprocket assembly (184).

(a) Install retaining ring (199) on shaft of differential (196).

(b) Install sprocket wheel (201) on differential and secure with three lockwashers (198) and screws (197).

(c) Install bearing (200).

(d) Install collar (p/o 196) and align pin holes.

(e) Install tapered pin (p/o 196). Ensure that pin is below surface of collar.

(f) Install roller guide (195) on shoulder of bearing support (193).

(g) Install bearing support (193) in sprocket wheel (201) and rotate until screw holes are aligned.

(h) Install two screws (194).

(i) Apply staking compound (figure 501) to heads of two screws (194).

(j) Install roller (192) over differential (196) and against sprocket wheel (201).

(k) Install main roller (191) over differential.

(l) Install sprocket wheel (190) on shoulder of differential.

(m) Install roller guide (189) on shoulder of gear (187).

(n) Install gear (187) on differential and sprocket wheel (190). Secure with three screws (188).

(o) Apply staking compound (figure 501) to heads of three screws (188).

(p) Install gear (185) on differential and secure with two screws (186).

(q) Apply staking compound (figure 501) to heads of two screws (186).

(2) Install bearing (202) in right gearplate (249).

(3) Carefully install sprocket assembly (184) between altitude tape and DH tape in bearing (202) and mesh with variable resistor R54 gear (215). Altitude tape is in front of sprocket assembly and DH tape is behind sprocket assembly.

(4) Loosen two setscrews (214) on variable resistor R54 gear (215) and align gear (215) with sprocket assembly gear (187). Tighten two setscrews (214).

(5) Check altitude and DH tape threading as shown in figure 502.

Y. Installation of Left Gearplate (Refer to IPL figure 2.)

(1) Install two bearings (65), one bearing (75), one bearing (93), one bearing (111), one bearing (119), and one bearing (127) in left gearplate (53).

(2) Carefully install left gearplate on gearshafts and stop assembly (155). Secure with four screws (56). Ensure that all gearshafts are seated in bearings.

(3) Apply staking compound (figure 501) to heads of four screws (56).

Z. Installation of Plate (Refer to IPL figure 2.)

(1) Install plate (48) between left gearplate (53) and right gearplate (249).

(2) Install six screws (49).

(3) Apply staking compound (figure 501) to heads of six screws (49).

(4) Install two screws (46).

AA. Winding of DH and Altitude Tape on Storage Rollers (Refer to figures 503 and 504.)

NOTE: When installing or replacing altitude tapes to the storage rollers, an adhesive may be used to make sure that tapes do not come away from the storage rollers. This adhesive is 3M type EC 1357, CPN 005-0474-000. Clean surfaces with Toluene, CPN 005-1401-010 prior to applying adhesive.

(1) Install tape winding fixture (figure 1001) on mechanical assembly with left portion installed on left gearplate (55) and right portion installed on right gearplate (249).

(2) Install shot pin through idler shaft holes in tape winding fixture and mechanical assembly.

(3) Rock left and right portions of tape winding fixture from side to side to provide equal mesh with roller gears.

(4) Tighten both left and right clamp knobs on both left and right portions of tape winding fixture.

(5) Rotate right-front gear knob clockwise, while holding tape so that tape winds tight on front storage roller, until 1000-foot altitude mark is located on top of top tape roller.

(6) Rotate right-rear gear knob counterclockwise until altitude tape is fully wound on rear storage roller.

(7) Rotate right-rear gear knob clockwise and check that rear storage roller is not loaded.

(8) Rotate right-rear gear counterclockwise until all slack is removed from altitude tape.

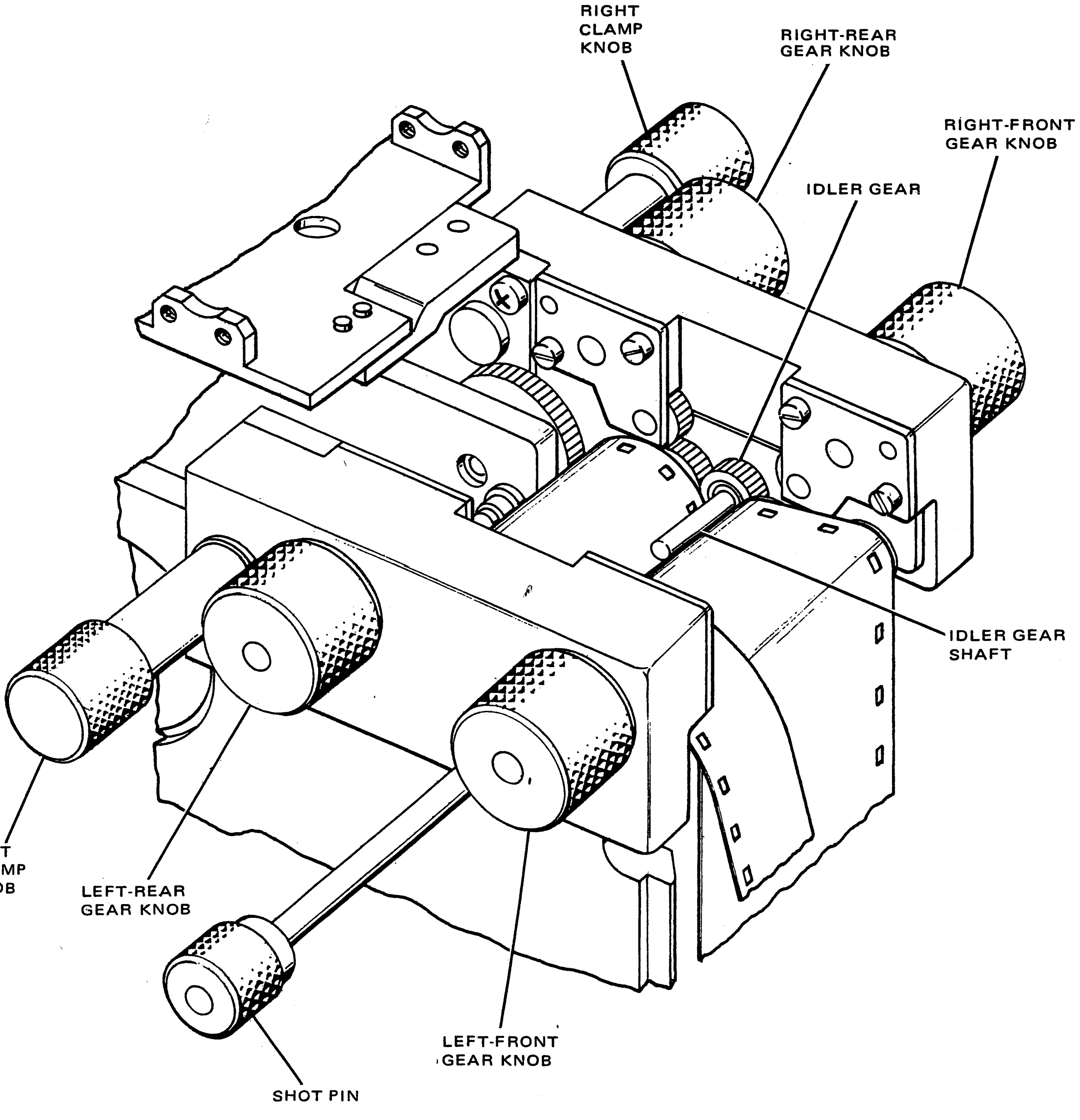
(9) Rotate right-front gear knob clockwise one complete turn to load springs in front and rear storage roller assemblies.

(10) Rotate left-rear gear knob counterclockwise 10 turns while holding DH tape so that tape winds tight on rear storage roller.

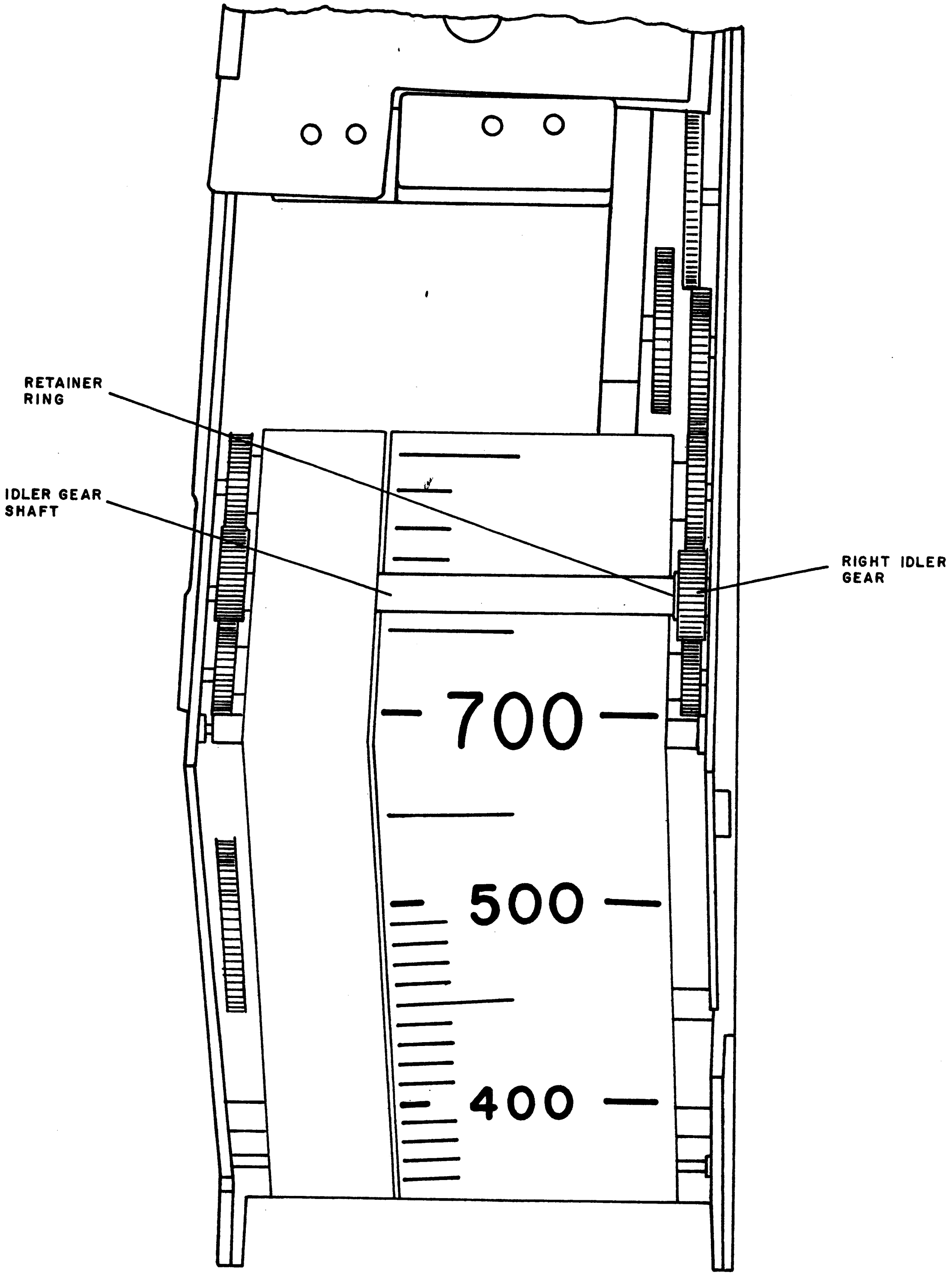
(11) Rotate left-front gear knob clockwise until the DH tape is completely wound on front storage roller.

(12) Rotate left-front gear knob counterclockwise to check that coil spring in front storage roller is not loaded.

(13) Rotate left-front gear knob clockwise until all slack is removed from the DH tape.



Tape Winding Fixture, Installation
Figure 503



Idler Gears, Installation
Figure 504

(14) Rotate left-front gear knob clockwise one complete turn to load coil springs in storage roller.

(15) Use retaining compound primer (figure 501) and clean outside diameter of bearing (53, IPL figure 2) and bearing (54, IPL figure 2).

(16) Use retaining compound primer (figure 501) and clean inside diameter of gear (50, IPL figure 2) and gear (52, IPL figure 2).

CAUTION: KEEP RETAINING COMPOUND OUT OF BEARING.

(17) Apply a light coating of retaining compound (figure 501) to inside diameter of gear (50, IPL figure 2) and gear (52, IPL figure 2).

(18) Install bearing (53, IPL figure 2) in gear (52, IPL figure 2).

(19) Install bearing (54, IPL figure 2) in gear (52, IPL figure 2).

(20) Place two gears (50, 52, IPL figure 2) in oven for 20 minutes at 50 °C (158 °F).

(21) Remove knurled knob from shot pin.

(22) Use shaft (50, IPL figure 2) insert from right gearplate, and push shot pin until shaft (50, IPL figure 2) is flush with inside of right gearplate (249, IPL figure 2).

(23) Pull shot pin from left gearplate until end of shot pin is flush with inside of left gearplate.

(24) Install gear (52, IPL figure 2) with installed bearing (54, IPL figure 2) in cutout of right tape winding fixture; slide down to engage front and rear storage roller gears. Rotate tape winding fixture knobs as required to align bearing (54, IPL figure 2) with shaft (50, IPL figure 2).

(25) Slide shaft (50, IPL figure 2) through bearing (54, IPL figure 2) and part way across mechanical assembly.

(26) Install gear (52, IPL figure 2) with installed bearing (53, IPL figure 2) in cutout of left tape winding fixture and slide down to engage front and rear storage roller gears. Rotate tape winding fixture knobs as required to align bearing (53, IPL figure 2) with shaft (50, IPL figure 2).

(27) Slide shaft (50, IPL figure 2) through bearing (53, IPL figure 2.)

(28) Remove shot pin and use to center shaft (50, IPL figure 2) in mechanical assembly.

(29) Remove left and right portions of tape winding fixtures.

(30) Install two retaining rings (51, IPL figure 2).

(31) Use gear extending above right gearplate (249, IPL figure 2) to rotate both tapes to limits of their travel and check that tapes remain tight. If slack is apparent, reload storage rollers as described in steps (9) and (14).

(32) Apply light coating of silicone grease (figure 501) to two gears (52, IPL figure 2). Wipe off excess.

NOTE: Perform step AB only on 522-4825-002 indicators.

AB. Installation of Self-Test Switch S2 (Refer to IPL figure 2.)

Install self-test switch S2 (47) in plate (48) and secure with nut (p/o 47).

AC. Adjustment of DH Control Shaft (Refer to IPL figure 2.)

(1) Loosen four setscrews (162).

NOTE: Perform step (2) only on 522-4825-002 indicators.

(2) Adjust collar (161) to allow shaft (166) to travel 1/16 inch when switch S2 (47) is completely depressed. Tighten four setscrews (162) to secure collar (161) in position.

(3) Check torque of shaft (166) with torque watch (figure 1001) in both directions. Torque must be between 7 and 11 inch-ounces. Adjust torque by loosening four setscrews (151) and adjusting collar (150) against spring seat (152) to obtain correct torque.

AD. Installation on Flag Solenoid L1 (Refer to IPL figure 2.)

CAUTION: IN HANDLING FLAG SOLENOID L1, PREVENT DAMAGE TO FLAG AND CONNECTING ARM.

(1) Install flag solenoid L1 (41) in clamp (39).

(2) Install clamp (39) and installed flag solenoid L1 (41) on mechanical assembly. Secure with two screws (40).

AE. Installation of Masks (Refer to IPL figure 2.)

(1) Position left pointer mask (43) and right pointer mask (44) on mechanical assembly.

(2) Install main instrument mask (42) and secure with four screws (45). Do not tighten screws.

(3) Adjust left and right pointer masks to provide a minimum clearance of 0.005 inch between mask and tapes. Tighten four screws (45).

(4) Check that pointers are aligned on left and right pointer masks.

AF. Adjustment of Altitude and DH Tapes and DH Counter (Refer to IPL figure 2.)

(1) Use gear extending above right gearplate (249) to align 100-foot altitude mark with pointer on right pointer mask (44).

(2) Loosen two setscrews (136) on DH counter gear (135).

(3) Use bevel gear (128) to adjust DH tape until DH index is aligned with 100-foot mark on altitude tape.

(4) Rotate DH counter (137) until 100 is displayed through main instrument mask (42).

(5) Tighten two setscrews (136) on DH counter gear (135).

(6) Loosen two setscrews (207) on variable resistor R11 gear (208).

(7) Use gear extending above right gearplate (249) to adjust altitude tape to -25 foot. Altitude indication is in the striped area below 0-foot mark.

(8) Use bevel gear (128) to adjust DH tape until DH index is aligned with -25-foot altitude indication on altitude tape.

(9) Check that DH counter displays black and white stripes in instrument mask. Check that counter reads 107 across bottom when observed from bottom of mechanical assembly. If not, loosen two setscrews (136) and readjust counter to correct indication. Retighten two setscrews (136).

(10) Adjust shaft (166) fully counterclockwise to stop.

(11) Loosen two setscrews (129) and two setscrews (141).

(12) Mesh bevel gears (128, 140) for minimum backlash but without toothiness.

(13) Tighten two setscrews (129) and two setscrews (141).

(14) Insert screwdriver through hole in right gearplate (249) and into slot of variable resistor R11 shaft. Adjust shaft of variable resistor R11 (206) fully clockwise and then back off 5 degrees.

(15) Tighten two setscrews (207) in variable resistor R11 gear (208).

(16) Loosen two setscrews (214) on variable resistor R54 gear (215).

(17) Insert screwdriver through hole in right gearplate (249) and into slot of variable resistor R54 shaft. Adjust shaft of variable resistor R54 (213) fully clockwise and then back off 5 degrees. Tighten two setscrews (214).

(18) Rotate shaft (166) clockwise and observe that DH counter and DH index follow. Rotate shaft to stop.

(19) Rotate gear extending above right gearplate (249) to align 500-foot altitude mark with pointer on right pointer mask (44).

(20) Observe that DH counter is masked with a black mask and DH index indicates more than 500 feet with shaft (166) fully clockwise against shaft stop and before variable resistor R54 stop is reached. If stop is not reached before above conditions are obtained, loosen two setscrews (214) on variable resistor R54 gear (215) and rotate shaft (166) to stop. Tighten two setscrews (214).

(21) Rotate gear extending above right gearplate to align pointer on right pointer mask (44) with 400-foot altitude mark.

(22) Rotate shaft (166) counterclockwise until DH index on DH tape is aligned with 400-foot altitude mark. Do not overshoot. DH counter must indicate between 398 and 402; if not, readjust counter as described in steps (1) through (9), (21), and (22).

(23) Rotate gear extending above right gearplate to align 200-foot altitude mark with pointer on right pointer mask (44).

(24) Rotate shaft (166) counterclockwise until DH index is aligned with 200-foot altitude mark. Do not overshoot. DH counter should read 198 to 202; if not, readjust as described in steps (1) through (9) and (21) through (24).

AG. Installation of Lighting Wedge (Refer to IPL figure 2.)

CAUTION: HANDLE LIGHTING WEDGE WITH CARE TO PREVENT SCRATCHING OR BREAKING.

(1) Position lighting wedge (38) in main instrument mask (42) and slide down until bottom of lighting wedge is seated in U-channel on bottom of main instrument mask.

(2) Install two clips (36, 37).

AH. Installation of DH Indicator Mounting (Refer to IPL figure 2.)

(1) Position DH indicator mounting (33) on mechanical assembly.

(2) Install four screws (34).

AI. Installation of Lighting Assembly (Refer to IPL figure 2.)

(1) Slide lighting assembly (25) in slot on mounting (33).

(2) Install lamp shield (23) and secure with two screws (24).

AJ. Assembly and Installation of DH Housing Assembly (Refer to IPL figure 2.)

(1) Assemble DH housing assembly (15).

(a) Install two special switch contacts (16) and springs (17).

(b) Push in on contacts (16) and install two retaining rings (18).

(2) Install DH housing assembly (15) on mounting (33) and secure with two washers (22), lockwashers (21), and screws (20).

AK. Assembly and Installation of DH Lens Assembly (Refer to IPL figure 2.)

(1) Assemble DH lens assembly (2).

(a) Install spring (8) and printed wiring board (7) on actuator (9). Secure with retaining ring (10).

(b) Install two lamps (5) in DH lens (3).

(c) Install actuator (9) in DH lens (3) until printed wiring board (7) makes positive contact with two lamps (5).

(d) Apply staking compound (figure 501) to threads of setscrew (4) and install setscrew.

(2) Install gasket (14) on actuator (9). A light coating of silicone grease (figure 501) may be applied to gasket to facilitate installation.

(3) Install DH lens assembly (2) in DH housing assembly (15) and depress on lens assembly until gasket (14) extends beyond DH housing assembly.

AL. Installation of Switch S1 (Refer to IPL figure 2.)

(1) Install mounting bracket (29) on mounting (33) and secure with two washers (32), lockwashers (31), and screws (30).

(2) Position switch adapter (27) and switch S1 (26) on bracket (29) and secure with two screws (28). Ensure that adapter is positioned with arm of adapter (27) contacting actuator (9).

(3) Depress DH lens (3) and check that switch S1 (26) is actuated; if not, readjust bracket (32).

(4) Apply staking compound (figure 501) to heads of two screws (28).

AM. Installation of Mechanical Assembly to Electronic Subassembly (Refer to IPL figure 1.)

(1) Adjust two screws (46, IPL figure 2) so that flat sides are horizontal and parallel to top and bottom of mechanical assembly (14).

(2) Position mechanical assembly (14) on electronic subassembly (15) and start connector J1 (35, IPL figure 2) into connector P1 (6, IPL figure 3).

(3) Align screws (46, IPL figure 2) with slots in mounting subassembly (24, IPL figure 3).

(4) Alternately tighten screws in connector J1 (35, IPL figure 2) and, at same time, move mechanical assembly (14) toward electronic subassembly (15).

(5) Rotate screws (46, IPL figure 2) 90 degrees to lock mechanical assembly to electronic subassembly. Screws are not tightened down but are snug enough to lock assemblies together.

(6) Perform adjustment procedures described in paragraph 6.

AN. Assembly and Installation of Case (Refer to IPL figure 1.)

(1) Assemble case (6).

- (a) Apply coat of sealant (figure 501) to area in case (6) on which dial window (9) seats.
- (b) Press dial window into position inside case (6).
- (c) Allow sealant to dry at room temperature.

(2) Clean inside and outside of case using lint-free tissue (figure 201).

(3) Using vacuum and brush, clean indicator.

(4) Install indicator in case (6) and secure with four screws (7) and two screws (8).

(5) Install two setscrews (3) in control knob (2).

(6) Install knob on shaft and tighten two setscrews (3).

(7) Using sealing tape (figure 501), seal joint between rear cover and indicator case.

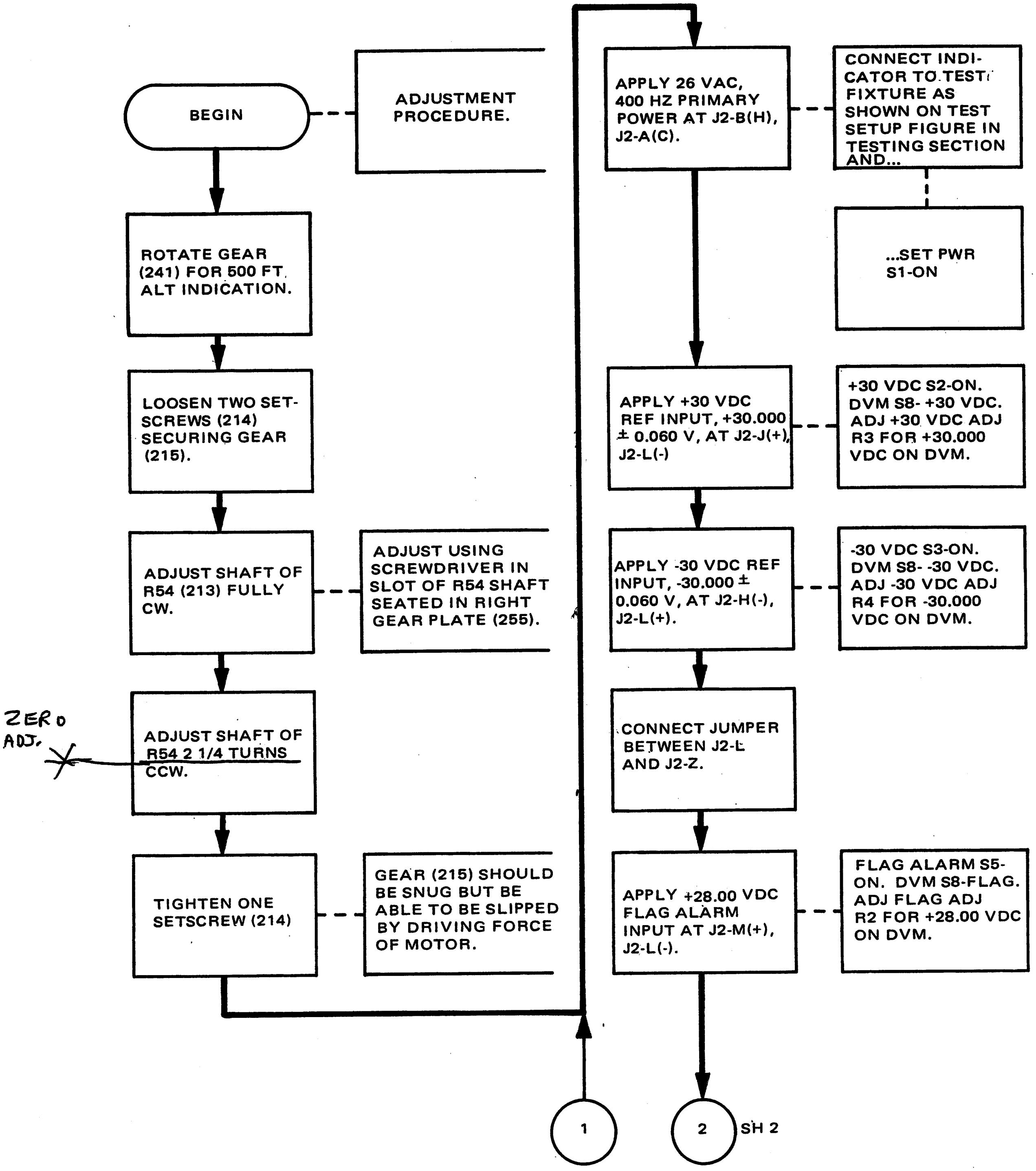
6. Adjustment Procedures

A. General

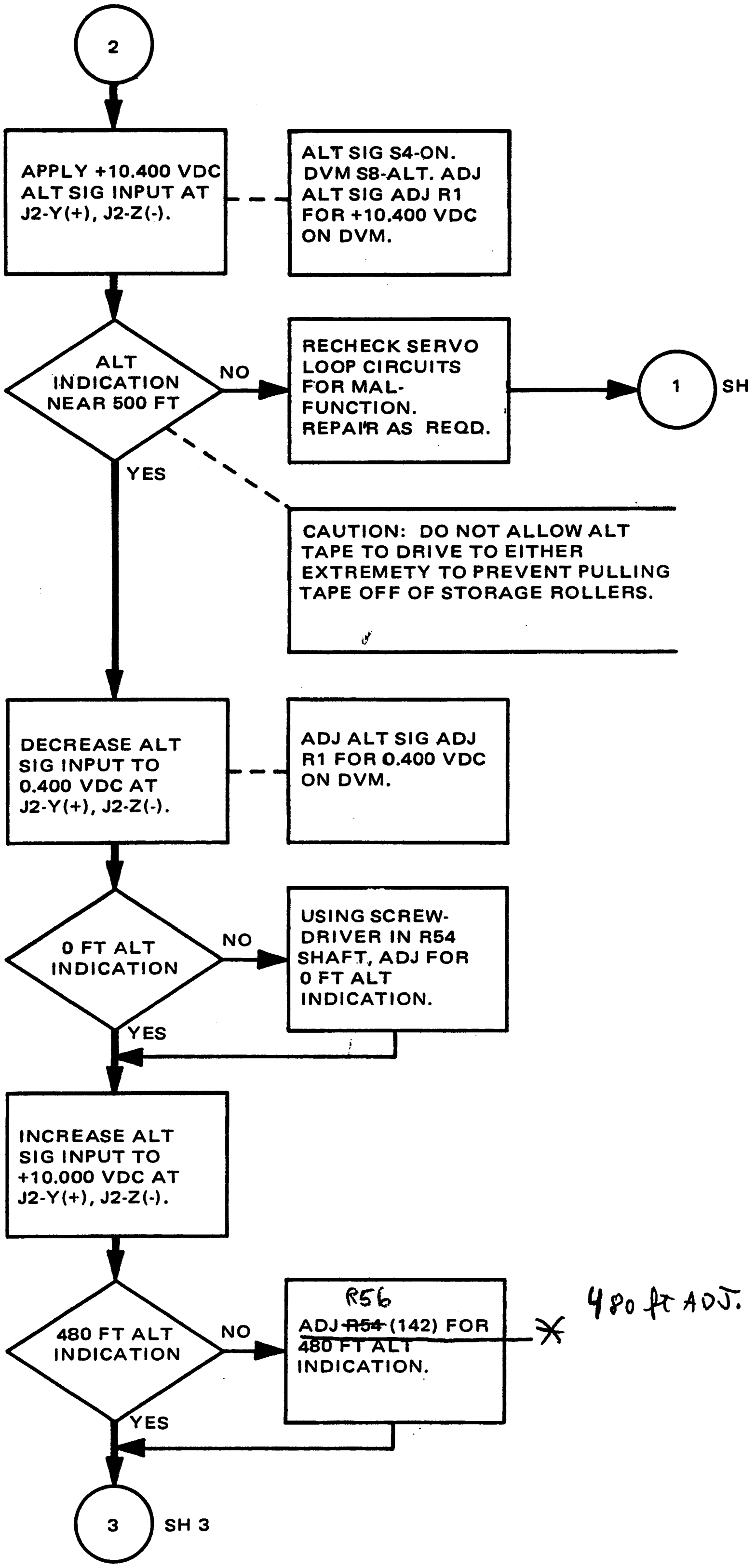
This paragraph presents the adjustment procedures required to ensure proper operation after repair or overhaul of the indicator. The adjustment procedures are presented as a flow diagram. For information on use of the flow diagram, refer to figure 701.

B. Adjustment Procedure

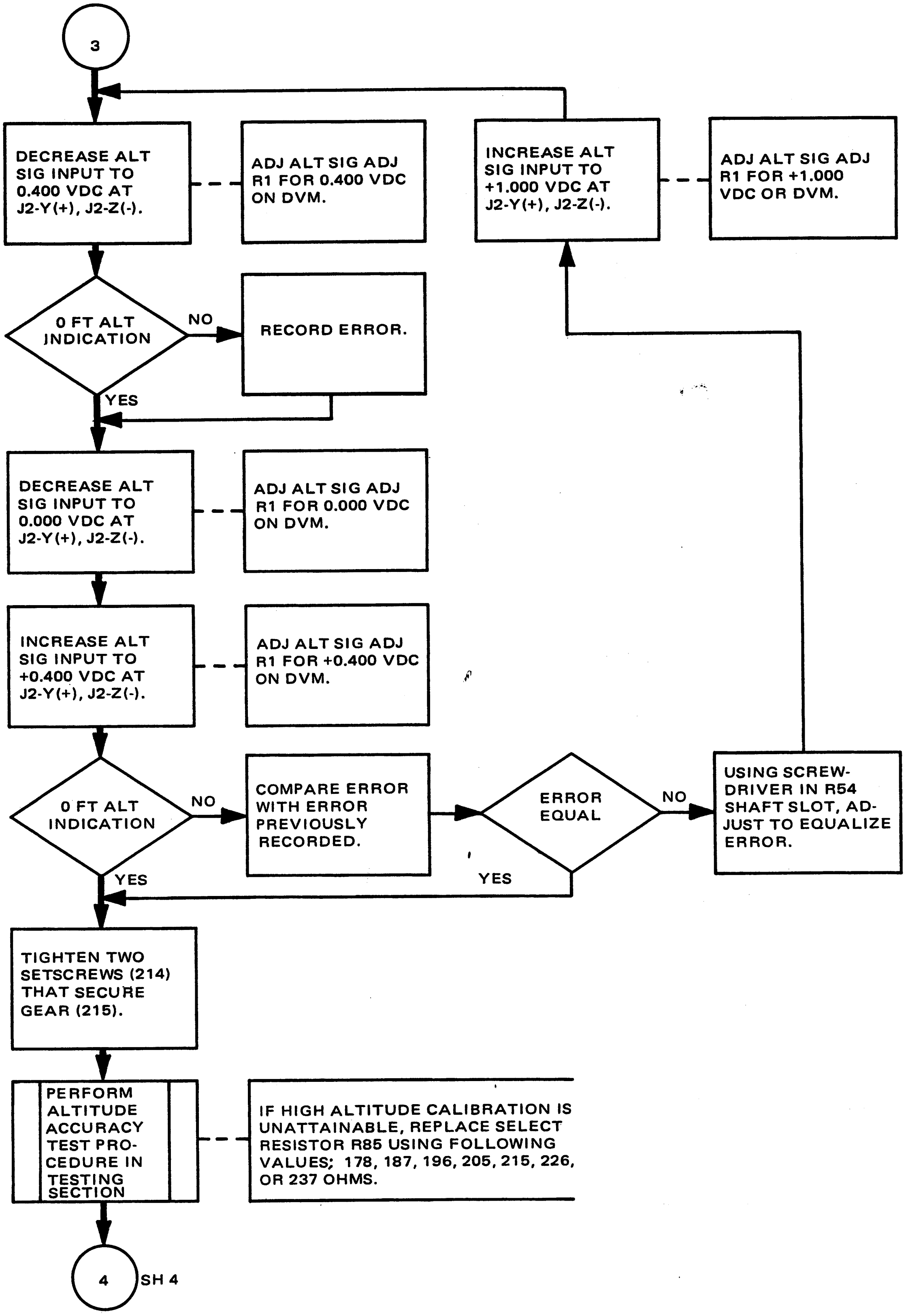
The adjustment procedure starts with the begin symbol on figure 505 and must be completely performed to the finish symbol to ensure complete adjustment of the indicator.


BEGIN
ADJUSTMENT PROCEDURE.
ROTATE GEAR (241) FOR 500 FT. ALT INDICATION.
LOOSEN TWO SETSCREWS (214) SECURING GEAR (215).
ADJUST SHAFT OF R54 (213) FULLY CW.
ADJUST USING SCREWDRIVER IN SLOT OF R54 SHAFT SEATED IN RIGHT GEAR PLATE (255).
ZERO ADJ.
ADJUST SHAFT OF R54 2 1/4 TURNS CCW.
TIGHTEN ONE SETSCREW (214)
GEAR (215) SHOULD BE SNUG BUT BE ABLE TO BE SLIPPED BY DRIVING FORCE OF MOTOR.
APPLY 26 VAC, 400 HZ PRIMARY POWER AT J2-B(H), J2-A(C).
CONNECT INDICATOR TO TEST FIXTURE AS SHOWN ON TEST SETUP FIGURE IN TESTING SECTION AND...
...SET PWR S1-ON
APPLY +30 VDC REF INPUT, +30.000 ± 0.060 V, AT J2-J(+), J2-L(-)
+30 VDC S2-ON. DVM S8- +30 VDC. ADJ +30 VDC ADJ R3 FOR +30.000 VDC ON DVM.
APPLY -30 VDC REF INPUT, -30.000 ± 0.060 V, AT J2-H(-), J2-L(+).
-30 VDC S3-ON. DVM S8- -30 VDC. ADJ -30 VDC ADJ R4 FOR -30.000 VDC ON DVM.
CONNECT JUMPER BETWEEN J2-L AND J2-Z.
APPLY +28.00 VDC FLAG ALARM INPUT AT J2-M(+), J2-L(-).
FLAG ALARM S5-ON. DVM S8-FLAG. ADJ FLAG ADJ R2 FOR +28.00 VDC ON DVM.
1
2
SH 2

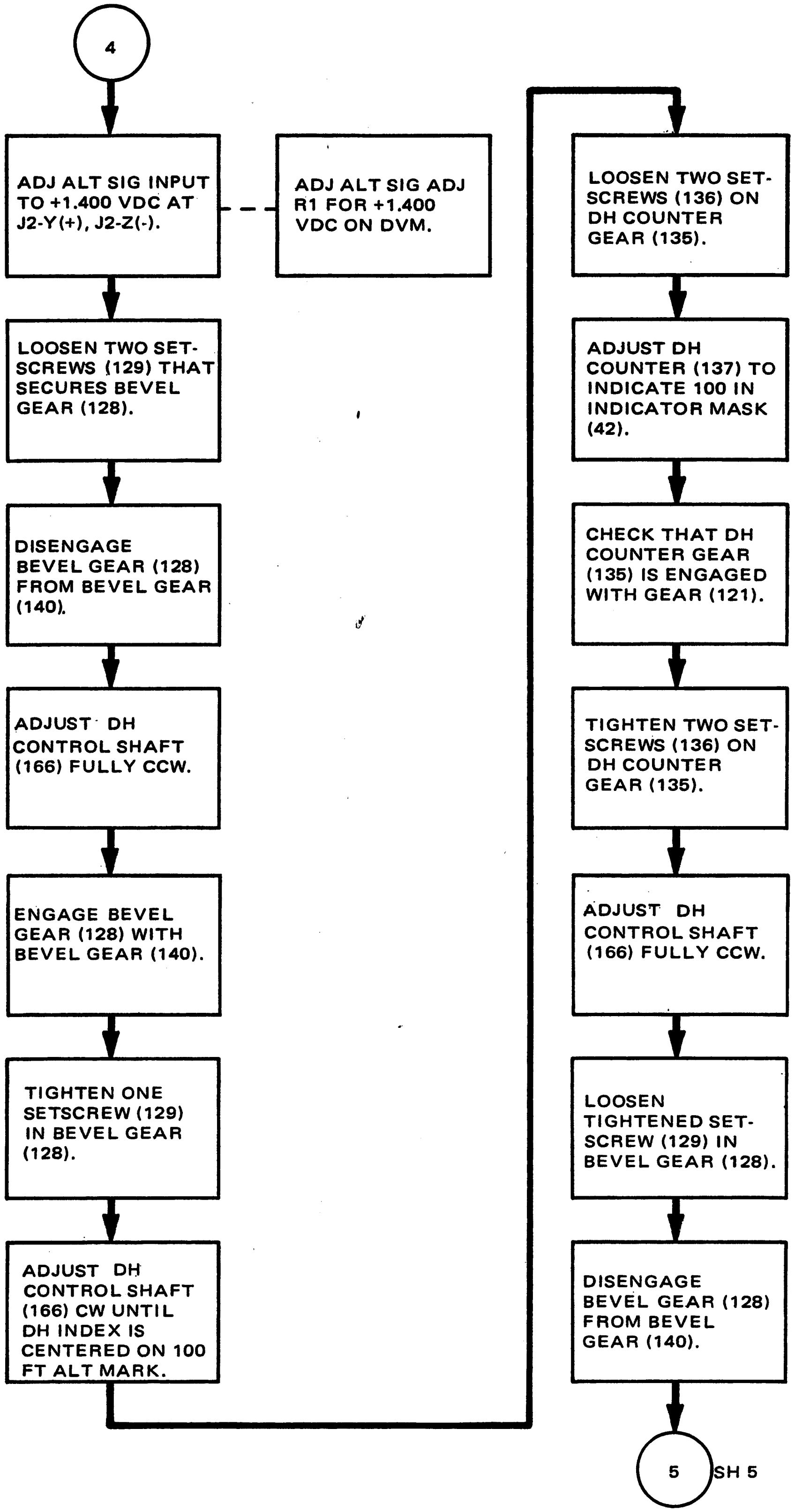
Adjustment Procedures
Figure 505 (Sheet 1 of 6)


2
APPLY +10.400 VDC ALT SIG INPUT AT J2-Y(+), J2-Z(-).
ALT SIG S4-ON. DVM S8-ALT. ADJ ALT SIG ADJ R1 FOR +10.400 VDC ON DVM.
ALT INDICATION NEAR 500 FT
NO
RECHECK SERVO LOOP CIRCUITS FOR MALFUNCTION. REPAIR AS REQD.
1
SH 1
YES
CAUTION: DO NOT ALLOW ALT TAPE TO DRIVE TO EITHER EXTREMETY TO PREVENT PULLING TAPE OFF OF STORAGE ROLLERS.
DECREASE ALT SIG INPUT TO 0.400 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR 0.400 VDC ON DVM.
0 FT ALT INDICATION
NO
USING SCREWDRIVER IN R54 SHAFT, ADJ FOR 0 FT ALT INDICATION.
YES
INCREASE ALT SIG INPUT TO +10.000 VDC AT J2-Y(+), J2-Z(-).
480 FT ALT INDICATION
NO
R56
ADJ ~~R54~~ (142) FOR ~~480 FT ALT~~ INDICATION.
*
480 ft ADJ.
YES
3
SH 3

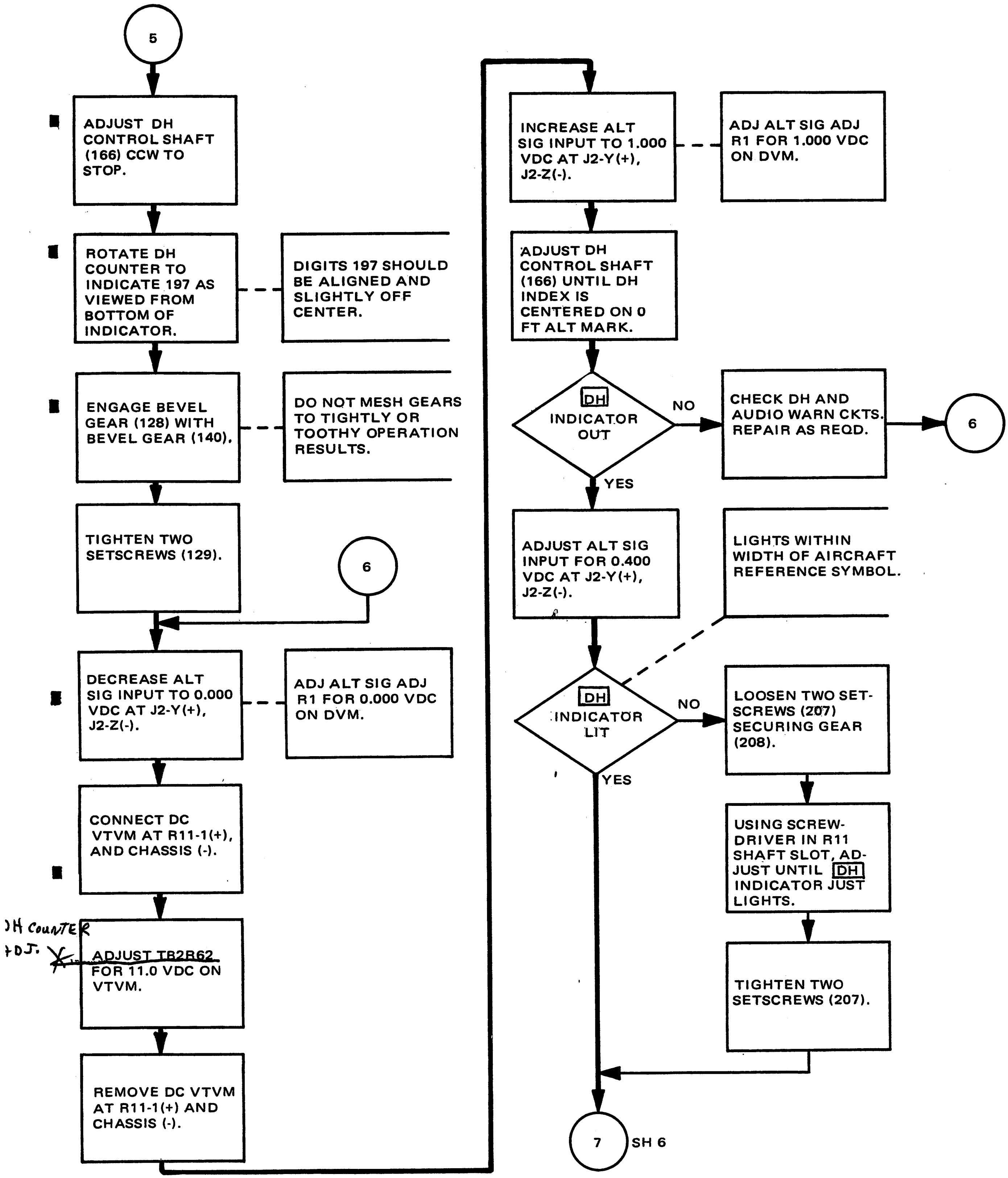
Adjustment Procedures
Figure 505 (Sheet 2 of 6)


3
DECREASE ALT SIG INPUT TO 0.400 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR 0.400 VDC ON DVM.
INCREASE ALT SIG INPUT TO +1.000 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR +1.000 VDC OR DVM.
0 FT ALT INDICATION
NO
RECORD ERROR.
YES
DECREASE ALT SIG INPUT TO 0.000 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR 0.000 VDC ON DVM.
INCREASE ALT SIG INPUT TO +0.400 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR +0.400 VDC ON DVM.
0 FT ALT INDICATION
NO
COMPARE ERROR WITH ERROR PREVIOUSLY RECORDED.
ERROR EQUAL
NO
USING SCREW-DRIVER IN R54 SHAFT SLOT, AD-JUST TO EQUALIZE ERROR.
YES
YES
TIGHTEN TWO SETSCREWS (214) THAT SECURE GEAR (215).
PERFORM ALTITUDE ACCURACY TEST PRO-CEDURE IN TESTING SECTION
IF HIGH ALTITUDE CALIBRATION IS UNATTAINABLE, REPLACE SELECT RESISTOR R85 USING FOLLOWING VALUES; 178, 187, 196, 205, 215, 226, OR 237 OHMS.
4
SH 4

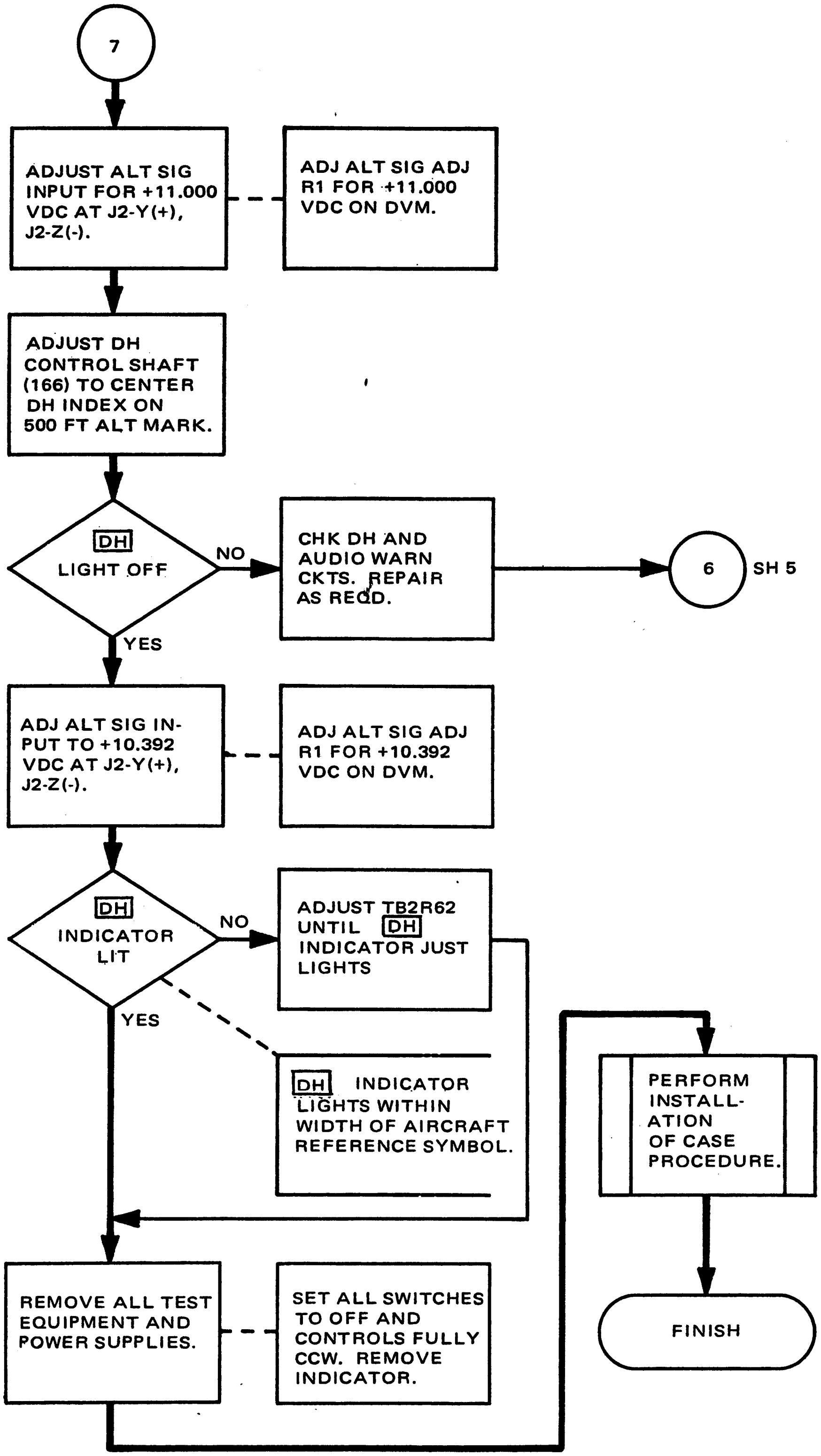
Adjustment Procedures
Figure 505 (Sheet 3 of 6)


4
ADJ ALT SIG INPUT TO +1.400 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR +1.400 VDC ON DVM.
LOOSEN TWO SETSCREWS (129) THAT SECURES BEVEL GEAR (128).
DISENGAGE BEVEL GEAR (128) FROM BEVEL GEAR (140).
ADJUST DH CONTROL SHAFT (166) FULLY CCW.
ENGAGE BEVEL GEAR (128) WITH BEVEL GEAR (140).
TIGHTEN ONE SETSCREW (129) IN BEVEL GEAR (128).
ADJUST DH CONTROL SHAFT (166) CW UNTIL DH INDEX IS CENTERED ON 100 FT ALT MARK.
LOOSEN TWO SETSCREWS (136) ON DH COUNTER GEAR (135).
ADJUST DH COUNTER (137) TO INDICATE 100 IN INDICATOR MASK (42).
CHECK THAT DH COUNTER GEAR (135) IS ENGAGED WITH GEAR (121).
TIGHTEN TWO SETSCREWS (136) ON DH COUNTER GEAR (135).
ADJUST DH CONTROL SHAFT (166) FULLY CCW.
LOOSEN TIGHTENED SETSCREW (129) IN BEVEL GEAR (128).
DISENGAGE BEVEL GEAR (128) FROM BEVEL GEAR (140).
5
SH 5

Adjustment Procedures
Figure 505 (Sheet 4 of 6)


5
ADJUST DH CONTROL SHAFT (166) CCW TO STOP.
ROTATE DH COUNTER TO INDICATE 197 AS VIEWED FROM BOTTOM OF INDICATOR.
DIGITS 197 SHOULD BE ALIGNED AND SLIGHTLY OFF CENTER.
ENGAGE BEVEL GEAR (128) WITH BEVEL GEAR (140).
DO NOT MESH GEARS TO TIGHTLY OR TOOTHY OPERATION RESULTS.
TIGHTEN TWO SETSCREWS (129).
6
DECREASE ALT SIG INPUT TO 0.000 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR 0.000 VDC ON DVM.
CONNECT DC VTVM AT R11-1(+), AND CHASSIS (-).
DH COUNTER ADJ. X
~~ADJUST TB2R62~~ FOR 11.0 VDC ON VTVM.
REMOVE DC VTVM AT R11-1(+) AND CHASSIS (-).
INCREASE ALT SIG INPUT TO 1.000 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR 1.000 VDC ON DVM.
ADJUST DH CONTROL SHAFT (166) UNTIL DH INDEX IS CENTERED ON 0 FT ALT MARK.
DH INDICATOR OUT
NO
CHECK DH AND AUDIO WARN CKTS. REPAIR AS REQD.
6
YES
ADJUST ALT SIG INPUT FOR 0.400 VDC AT J2-Y(+), J2-Z(-).
LIGHTS WITHIN WIDTH OF AIRCRAFT REFERENCE SYMBOL.
DH INDICATOR LIT
NO
LOOSEN TWO SETSCREWS (207) SECURING GEAR (208).
USING SCREWDRIVER IN R11 SHAFT SLOT, ADJUST UNTIL DH INDICATOR JUST LIGHTS.
TIGHTEN TWO SETSCREWS (207).
YES
7
SH 6

Adjustment Procedures
Figure 505 (Sheet 5 of 6)


7
ADJUST ALT SIG INPUT FOR +11.000 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR +11.000 VDC ON DVM.
ADJUST DH CONTROL SHAFT (166) TO CENTER DH INDEX ON 500 FT ALT MARK.
DH LIGHT OFF
NO
CHK DH AND AUDIO WARN CKTS. REPAIR AS REQD.
6
SH 5
YES
ADJ ALT SIG INPUT TO +10.392 VDC AT J2-Y(+), J2-Z(-).
ADJ ALT SIG ADJ R1 FOR +10.392 VDC ON DVM.
DH INDICATOR LIT
NO
ADJUST TB2R62 UNTIL DH INDICATOR JUST LIGHTS
YES
DH INDICATOR LIGHTS WITHIN WIDTH OF AIRCRAFT REFERENCE SYMBOL.
PERFORM INSTALLATION OF CASE PROCEDURE.
REMOVE ALL TEST EQUIPMENT AND POWER SUPPLIES.
SET ALL SWITCHES TO OFF AND CONTROLS FULLY CCW. REMOVE INDICATOR.
FINISH

Adjustment Procedures
Figure 505 (Sheet 6 of 6)

FITS AND CLEARANCES

1. General

Figure 601 lists the part and mating part with IPL figure references, type of fit or clearance, original manufacturer's dimension or assembly clearance, and allowable service wear tolerances. SERVICE WEAR LIMITS columns containing na means that the part does not wear with reference to the original manufacturer's limits and can be adjusted to meet the limits shown.

ITEM (IPL FIG-INDEX)	MATING ITEM (IPL FIG-INDEX)	TYPE FIT OR CLEARANCE	ORIGINAL MFR LIMITS				SERVICE WEAR LIMITS		
			DIMENSION		ASSEMBLY CLEARANCE		DIMENSION		ALLOWABLE TOLERANCE
			MIN	MAX	MIN	MAX	MIN	MAX	
2-166	2-150	Torque	7 in·oz	11 in·oz			6-1/2 in·oz	11-1/2 in·oz	1 in·oz
2-161	2-182	Clearance			0.093 in	0.095 in	0.0925 in	0.0955 in	0.001 in max
2-165	2-170	Extension above gear hub	0.105 in	0.109 in			Na	Na	Na
2-239	2-240	Torque	2-1/2 in·oz	6 in·oz			2-1/4 in·oz	6-1/4 in·oz	4 in·oz
2-239	2-241	Clearance			0.005 in		0.0045 in		0.0005 in
2-239	2-242	Clearance			0.005 in		0.0045 in		0.0005 in
2-241	2-242	Clearance			0.005 in		0.0045 in		0.0005 in
2-67	2-69	Clearance			0.002 in		0.0015 in		0.0005 in
2-43	2-70	Clearance			0.005 in	0.005 in	Na	Na	Na
2-44	2-70	Clearance			0.005 in	0.005 in	Na	Na	Na

Fits and Clearances
Figure 601

TESTING

1. General

The test procedures provide a functional test of the indicator and enable the technician to determine if repair and/or adjustment is required. The indicator is also referred to as the unit under test (UUT) in the test procedures.

2. Testing and Troubleshooting Philosophy

The testing and troubleshooting procedures are presented in figures 705 through 715 in flow diagrams. The flow diagram is designed to provide an easier and faster method of testing and troubleshooting the indicator.

A minimum performance test procedure is also presented as a flow diagram in figure 704. The procedure provides a fast check of an indicator to determine if the indicator requires repair or overhaul.

An abbreviated test language for avionic systems (ATLAS) test program is presented in figure 717.

The testing and troubleshooting procedures are divided into individual functional tests. Each functional test is an individual figure. Presenting the test procedures in individual functional tests allows the technician to enter the test procedure and perform an individual functional test to isolate and correct a malfunction. Only the total performance test procedure is divided into functional test procedures.

After any repair or overhaul of the indicator, a total performance test must be performed with the case installed and sealed to ensure that the equipment has been restored to operating condition. The total performance test can be performed using the flow diagrams and the test fixture or the ATLAS test program.

The total performance test can also be performed to isolate malfunctions. When isolating malfunctions, the test procedure should be performed with the case removed in a dust- and moisture-controlled area, such as a clean room. After repair and/or adjustment, another total performance test must be performed with the case installed and sealed.

A pretest procedure that sets up the equipment before beginning the minimum performance test, individual functional, or total performance test is presented in figure 702. A posttest procedure, that disconnects the equipment after a test, is presented in figure 716.

The flow diagram test procedures are for use with a test fixture (figure 1001) and also contain the status number (STATNO) of the ATLAS test program that performs the same identical operation. If, when using the test fixture, the technician desires to know where the input is applied or the measurement is made, the technician can refer to the referenced STATNO in the ATLAS test program.

During performance of the flow diagram test procedure, if an incorrect result is obtained, a troubleshooting procedure is provided on the same or adjacent sheet of the flow diagram that permits the technician to isolate, repair, and retest the circuit.

During performance of the ATLAS test program, if a fault indication is obtained, troubleshooting may be performed by locating the STATNO of the step that failed in the flow diagram procedure.

All troubleshooting procedures are written in an English language program (ELP) using standard test equipment. Therefore, if the test fixture is used for troubleshooting, the technician must be familiar with its operation in order to determine switch and control setting for an identical troubleshooting setup.

The flow diagram provides directions from one figure to the next when performing a total performance test.

3. Test Equipment and Power Requirements

A. Test Equipment

The flow diagram test procedures require the fabrication of a test fixture and additional standard test equipment as listed in figure 1001.

B. Power Sources

The flow diagram procedure power source requirements are listed on the test setup illustration. Refer to figure 708. The power sources are also listed in figure 1001.

4. Testing and Troubleshooting Procedures

A. Use of Flow Diagram Test Procedures

An example of a flow diagram test and troubleshooting procedure is presented on figure 701 with explanations of all symbols and flow lines. The example procedure is self-explanatory.

B. Use of ATLAS Test Program

The ATLAS test program for a total performance test is presented in figure 717. The ATLAS test program is referenced in the flow diagram test procedure to provide access to the troubleshooting procedure when a fault is indicated.

C. Troubleshooting Procedures

All standard and general troubleshooting procedures and the schematic diagram are presented in the Troubleshooting section. All detailed troubleshooting procedures are presented on the flow diagram total performance test procedures.

D. Detailed Test Procedure

(1) General

All test points and reference designators shown in parentheses are for indicators with CPN 522-4825-006.

Select type of test procedure to be performed from steps (2) through (5).

NOTE: All references to CPN 522-4825-002 apply also to CPN 522-4825-008, and all references to CPN 522-4825-006 apply also to CPN 522-4825-007, unless otherwise specified.

(2) Total Performance Testing Using Test Fixture

Proceed to pretest procedure, figure 702.

(3) Total Performance Testing Using ATLAS Test Program

Proceed to ATLAS test program, figure 717.

(4) Minimum Performance Test Using Test Fixture

Proceed to pretest procedure, figure 702.

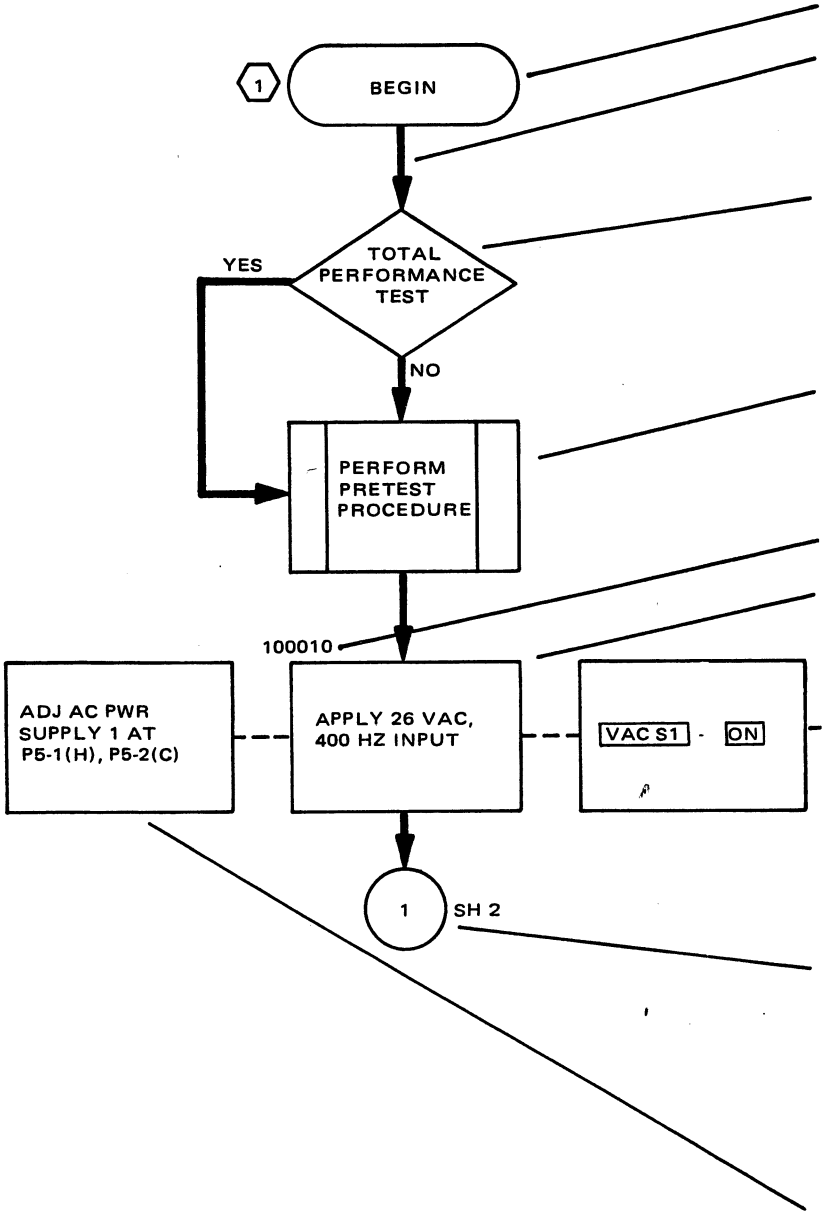
(5) Functional Test Using Test Fixture

Proceed to pretest procedure, figure 702.

(6) Test Procedure Index

The following listing gives each test title and the associated figure number as an aid to locating specific Test Procedures.

Title	Figure No
Example Test Procedure Flow Diagram	701
Pretest	702
Minimum Performance Test	704
Current Test	705
Preliminary Servo-Loop Test	706
Servo-Loop Operation Test	707
Altitude Accuracy Test	708
Flag Operation and Maintenance Monitor Test	709
Decision Height Index and Counter Accuracy Test	710
Decision Height and Audio Warn Test; CPN 522-4825-002, -004, -005, -007, -008	711
Decision Height and Audio Warn Test; CPN 522-4825-006	711A
500-Foot Alert Test; CPN 522-4825-005	711B
Comparator Warn Test	712
Remote Power-On Test	713
Altitude Trip Test; CPN 522-4825-002, -004, -006, -007, -008	714
Self-Test Circuit Test; CPN 522-4825-002, -006, -007, -008	715
Posttest Procedure	716
Atlas Test Program	717


1
BEGIN
YES
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST PROCEDURE
100010
ADJ AC PWR SUPPLY 1 AT P5-1(H), P5-2(C)
APPLY 26 VAC, 400 HZ INPUT
VAC S1 - ON
1
SH 2

TEST PROCEDURE START: INDICATES START OF TEST PROCEDURE.

TEST PROCEDURE FLOW LINE: INDICATES DIRECTION OF TEST PROCEDURE FLOW USING HEAVY LINE AND ARROWHEAD.

DECISION: INDICATES THAT A DECISION MUST BE MADE IN ANSWER TO THE QUESTION ASKED IN THE SYMBOL. THE FLOW FROM THE DECISION SYMBOL IS DEPENDENT ON THE DECISION MADE. THE DECISION IS GENERALLY A "YES" OR "NO" DECISION, HOWEVER, IN SOME CASES THE DECISION MAY REQUIRE A CHOICE FROM 3 POSSIBLE ANSWERS, SUCH AS "HIGH", "LOW", OR "NORMAL".

PREDEFINED INSTRUCTION: INDICATES THAT THE PROCEDURE SPECIFIED TO BE PERFORMED IS CONTAINED ELSEWHERE IN THE MANUAL OR IN ANOTHER PUBLICATION. THE MANUAL CONTAINING THE INSTRUCTION OR THE FIGURE CONTAINING THE INSTRUCTION IS INDICATED IN THE SYMBOL. IF A FIGURE IS REFERENCED, IT IS REFERENCED BY FIGURE TITLE ONLY.

ATLAS ⟨2⟩ STATNO: PROVIDES REFERENCE REFERENCE TO IDENTICAL STEP OR STEPS IN ATLAS PROGRAM.

TEST PROCEDURE INSTRUCTION: PROVIDES A SINGLE INSTRUCTION FOR PERFORMING A GENERALIZED TEST PROCEDURE.

SPECIAL TEST EQUIPMENT INSTRUCTION: PROVIDES ADDITIONAL INSTRUCTIONS FOR PERFORMING THE TEST PROCEDURE INSTRUCTION, WHEN SPECIALIZED TEST EQUIPMENT IS USED. THE SYMBOL IS CONNECTED TO TEST PROCEDURE INSTRUCTION SYMBOL WITH A DASHED LINE AND WILL ALWAYS APPEAR TO THE RIGHT OF THE MAIN TEST PROCEDURE INSTRUCTION.

CONNECTOR: DIRECTS USER TO FLOW LINE ENTRY POINT IDENTIFIED BY THE SAME NUMBER. CONNECTORS ARE NUMBERED SEQUENTIALLY THROUGH ONE ILLUSTRATION IN THE ORDER OF THEIR ENTRIES INTO THE FLOW LINES. WHEN AN EXIT CONNECTOR HAS AN ADJACENT SHEET NUMBER, THE MATING ENTRY CONNECTOR APPEARS ON THE SHEET SPECIFIED, OTHERWISE THE MATING ENTRY CONNECTOR APPEARS ON THE SAME SHEET. ALL EXIT CONNECTORS ARE NUMBER AS THEIR CORRESPONDING ENTRY CONNECTOR.

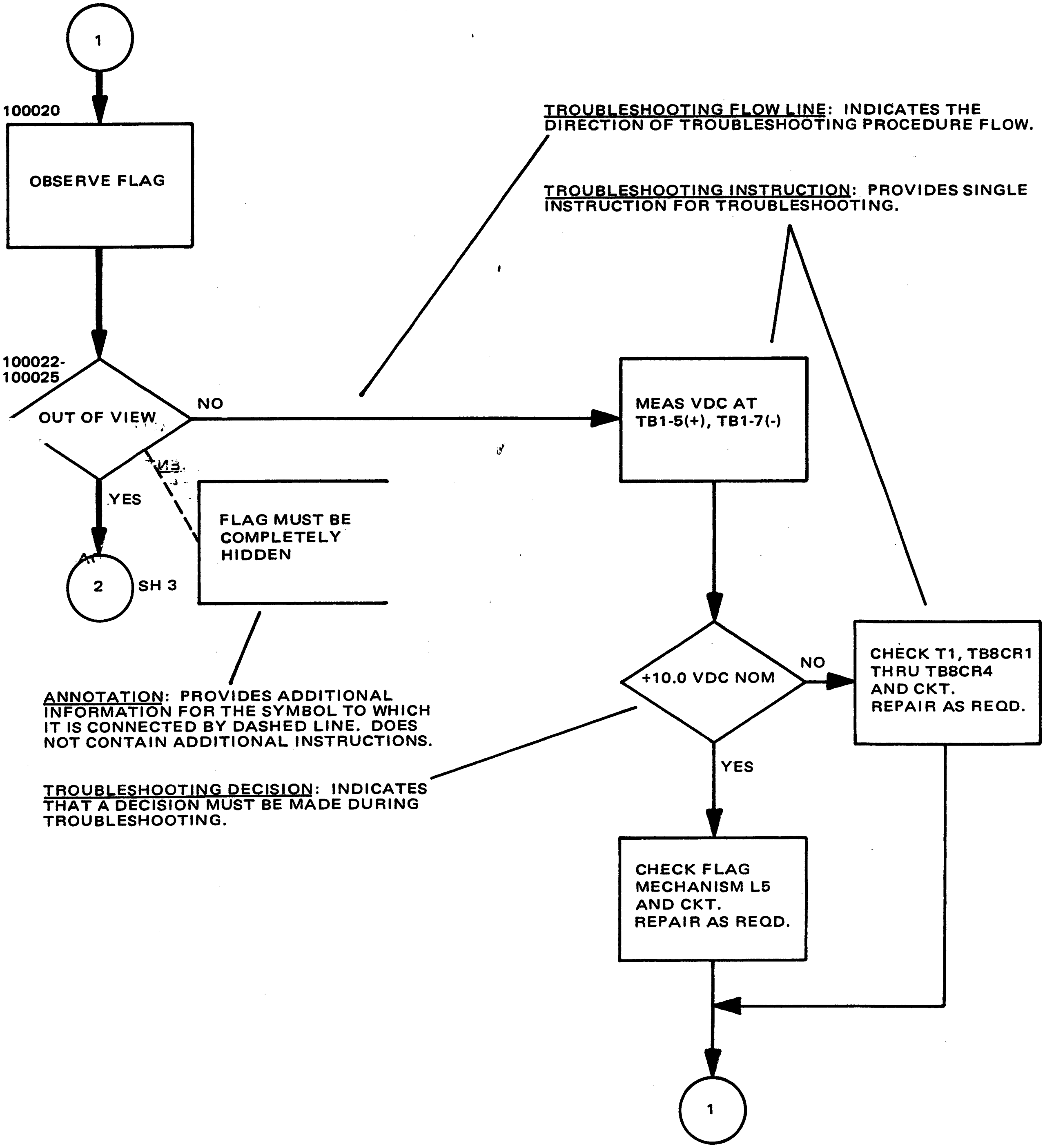
ELP ⟨2⟩ INSTRUCTION: PROVIDES ADDITIONAL INSTRUCTIONS FOR PERFORMING THE TEST PROCEDURE INSTRUCTION, WHEN STANDARD OR AUTOMATED TEST EQUIPMENT IS USED. THE SYMBOL IS CONNECTED TO THE TEST PROCEDURE INSTRUCTION WITH A DASHED LINE AND WILL ALWAYS APPEAR TO THE LEFT OF THE MAIN TEST PROCEDURE INSTRUCTION. THIS INSTRUCTION IS NOT PROVIDED WHEN ATLAS PROGRAM STATNO IS PROVIDED.

NOTES:

⟨1⟩ THE TEST PROCEDURE ILLUSTRATED IS HYPOTHETICAL. THE PROCEDURE IS USED ONLY TO DEFINE FLOW DIAGRAM SYMBOLS AND THEIR USE IN TESTING AND TROUBLESHOOTING PROCEDURES. DO NOT ATTEMPT TO PERFORM THESE PROCEDURES ON ANY EQUIPMENT.

⟨2⟩ NONSTANDARD ABBREVIATIONS:
ELP – ENGLISH LANGUAGE PROGRAM
ATLAS – ABBREVIATED TEST LANGUAGE FOR AVIONIC SYSTEMS.

Example Test Procedure Flow Diagram
Figure 701 (Sheet 1 of 3)


1
100020
OBSERVE FLAG
100022-
100025
OUT OF VIEW
NO
YES
2
SH 3
FLAG MUST BE COMPLETELY HIDDEN
MEAS VDC AT TB1-5(+), TB1-7(-)
+10.0 VDC NOM
NO
YES
CHECK T1, TB8CR1 THRU TB8CR4 AND CKT. REPAIR AS REQD.
CHECK FLAG MECHANISM L5 AND CKT. REPAIR AS REQD.
1

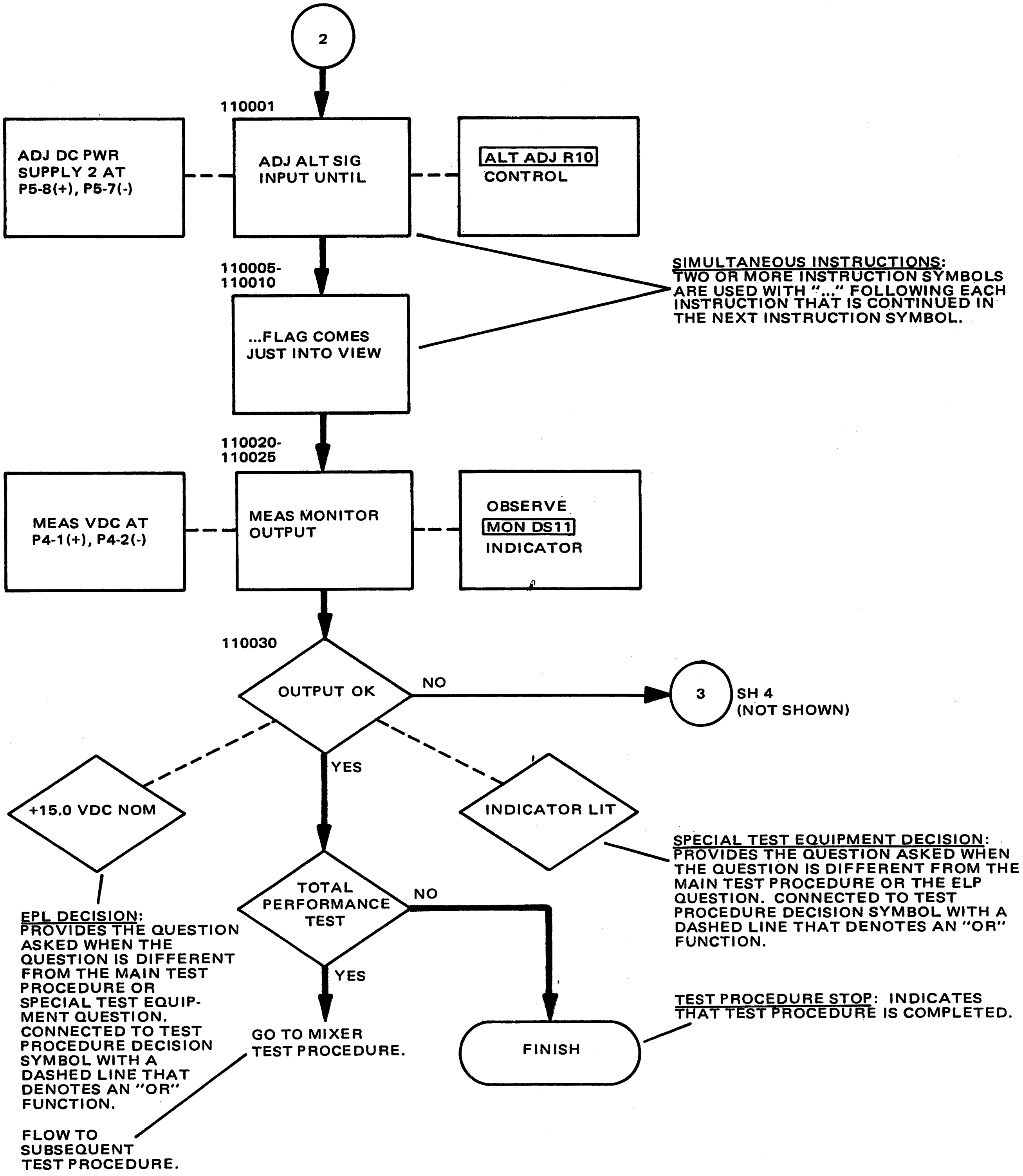
TROUBLESHOOTING FLOW LINE: INDICATES THE DIRECTION OF TROUBLESHOOTING PROCEDURE FLOW.

TROUBLESHOOTING INSTRUCTION: PROVIDES SINGLE INSTRUCTION FOR TROUBLESHOOTING.

ANNOTATION: PROVIDES ADDITIONAL INFORMATION FOR THE SYMBOL TO WHICH IT IS CONNECTED BY DASHED LINE. DOES NOT CONTAIN ADDITIONAL INSTRUCTIONS.

TROUBLESHOOTING DECISION: INDICATES THAT A DECISION MUST BE MADE DURING TROUBLESHOOTING.

Example Test Procedure Flow Diagram
Figure 701 (Sheet 2 of 3)



SIMULTANEOUS INSTRUCTIONS: TWO OR MORE INSTRUCTION SYMBOLS ARE USED WITH "..." FOLLOWING EACH INSTRUCTION THAT IS CONTINUED IN THE NEXT INSTRUCTION SYMBOL.

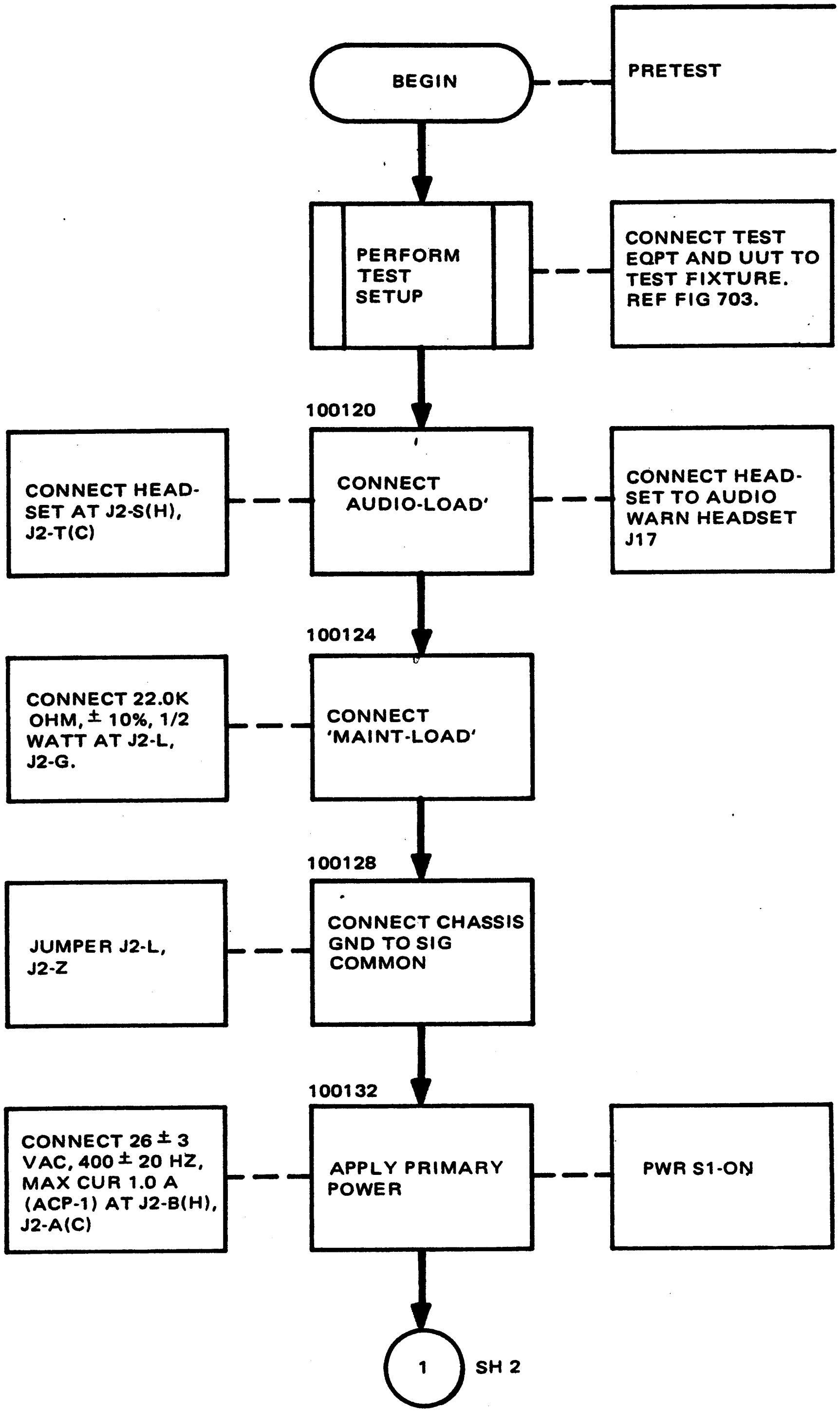
SPECIAL TEST EQUIPMENT DECISION: PROVIDES THE QUESTION ASKED WHEN THE QUESTION IS DIFFERENT FROM THE MAIN TEST PROCEDURE OR THE ELP QUESTION. CONNECTED TO TEST PROCEDURE DECISION SYMBOL WITH A DASHED LINE THAT DENOTES AN "OR" FUNCTION.

EPL DECISION: PROVIDES THE QUESTION ASKED WHEN THE QUESTION IS DIFFERENT FROM THE MAIN TEST PROCEDURE OR SPECIAL TEST EQUIPMENT QUESTION. CONNECTED TO TEST PROCEDURE DECISION SYMBOL WITH A DASHED LINE THAT DENOTES AN "OR" FUNCTION.

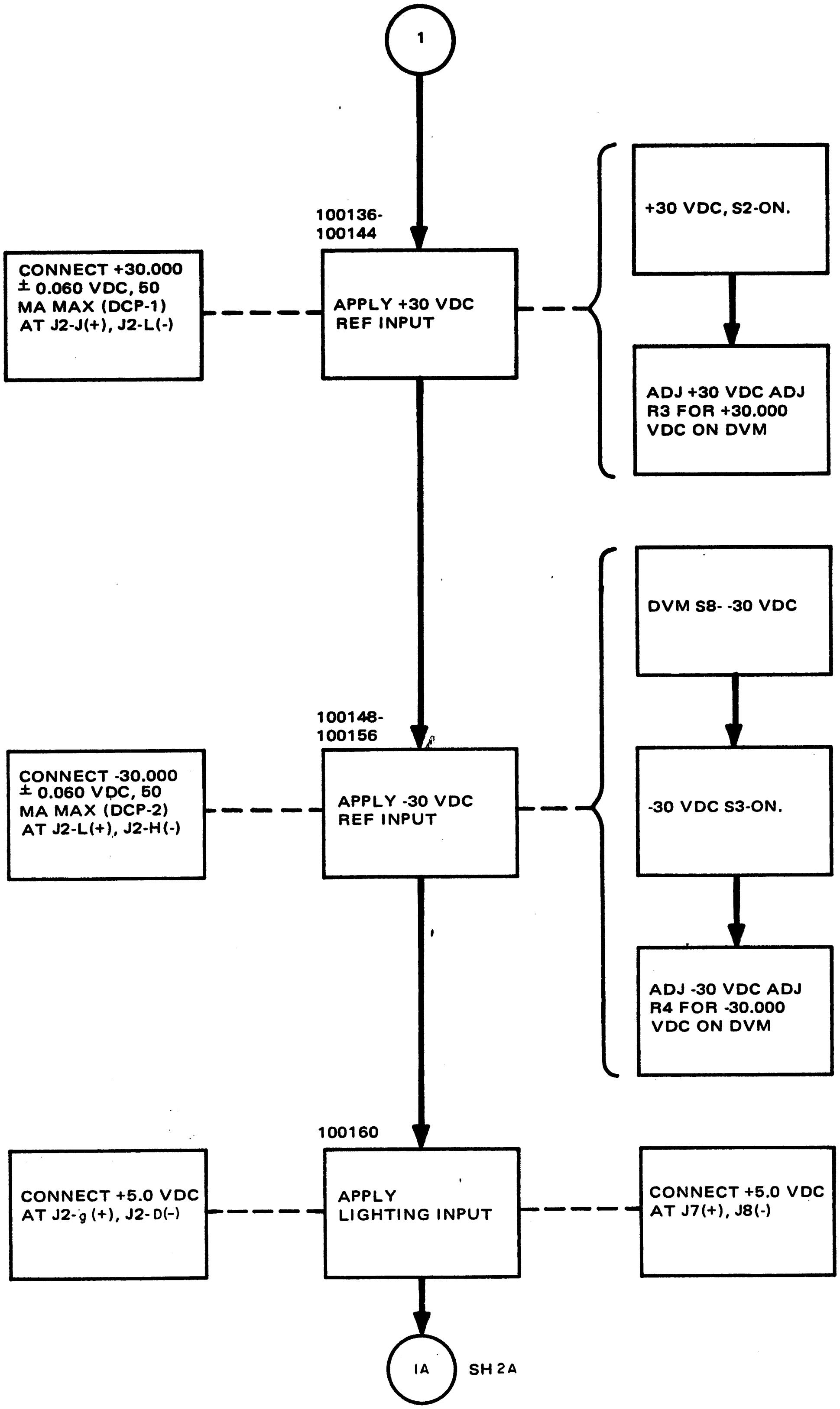
TEST PROCEDURE STOP: INDICATES THAT TEST PROCEDURE IS COMPLETED.

FLOW TO SUBSEQUENT TEST PROCEDURE.

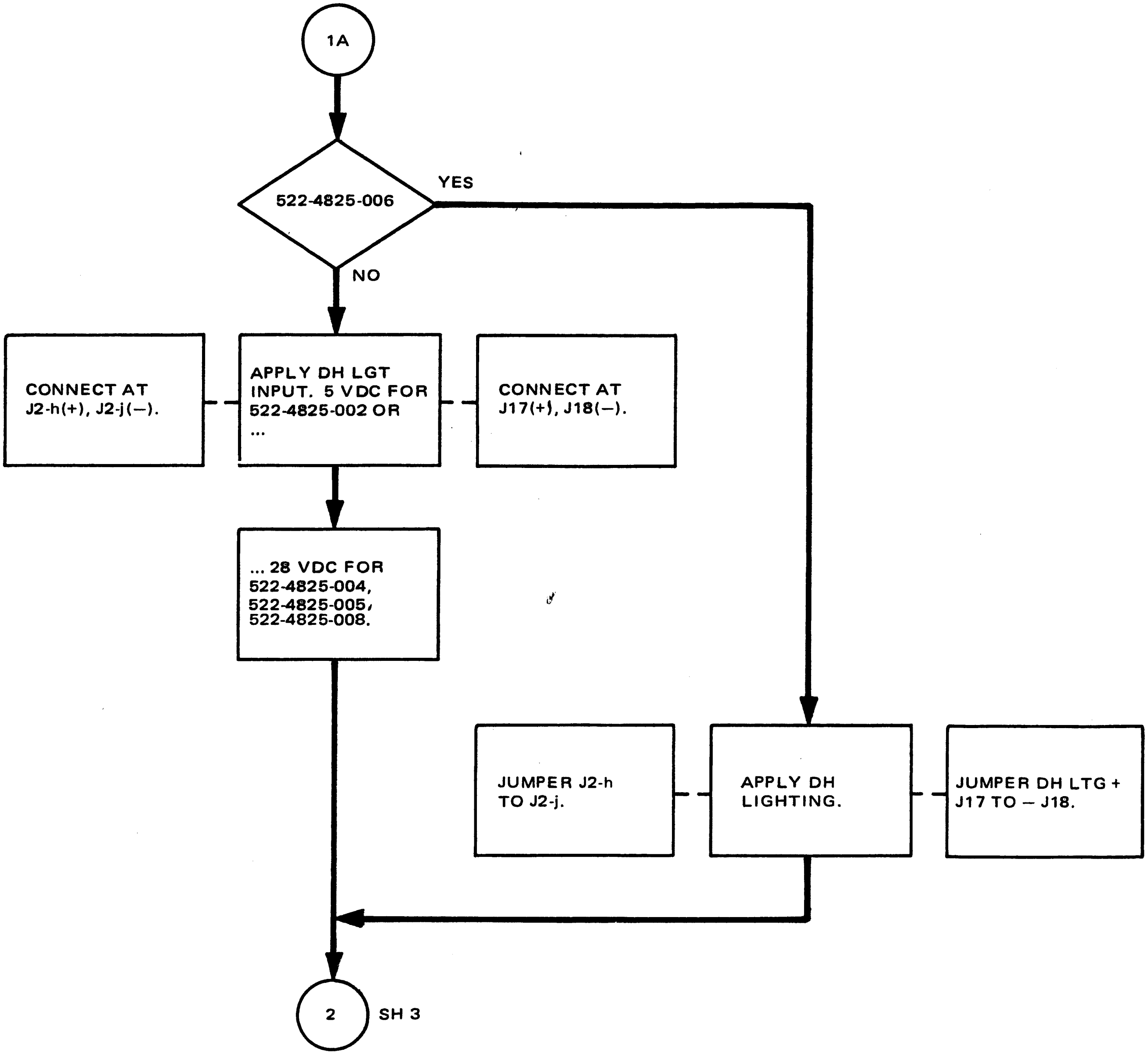
Example Test Procedure Flow Diagram
Figure 701 (Sheet 3 of 3)


BEGIN
PRETEST
PERFORM TEST SETUP
CONNECT TEST EQPT AND UUT TO TEST FIXTURE. REF FIG 703.
100120
CONNECT HEAD-SET AT J2-S(H), J2-T(C)
CONNECT 'AUDIO-LOAD'
CONNECT HEAD-SET TO AUDIO WARN HEADSET J17
100124
CONNECT 22.0K OHM, ± 10%, 1/2 WATT AT J2-L, J2-G.
CONNECT 'MAINT-LOAD'
100128
JUMPER J2-L, J2-Z
CONNECT CHASSIS GND TO SIG COMMON
100132
CONNECT 26 ± 3 VAC, 400 ± 20 HZ, MAX CUR 1.0 A (ACP-1) AT J2-B(H), J2-A(C)
APPLY PRIMARY POWER
PWR S1-ON
1
SH 2

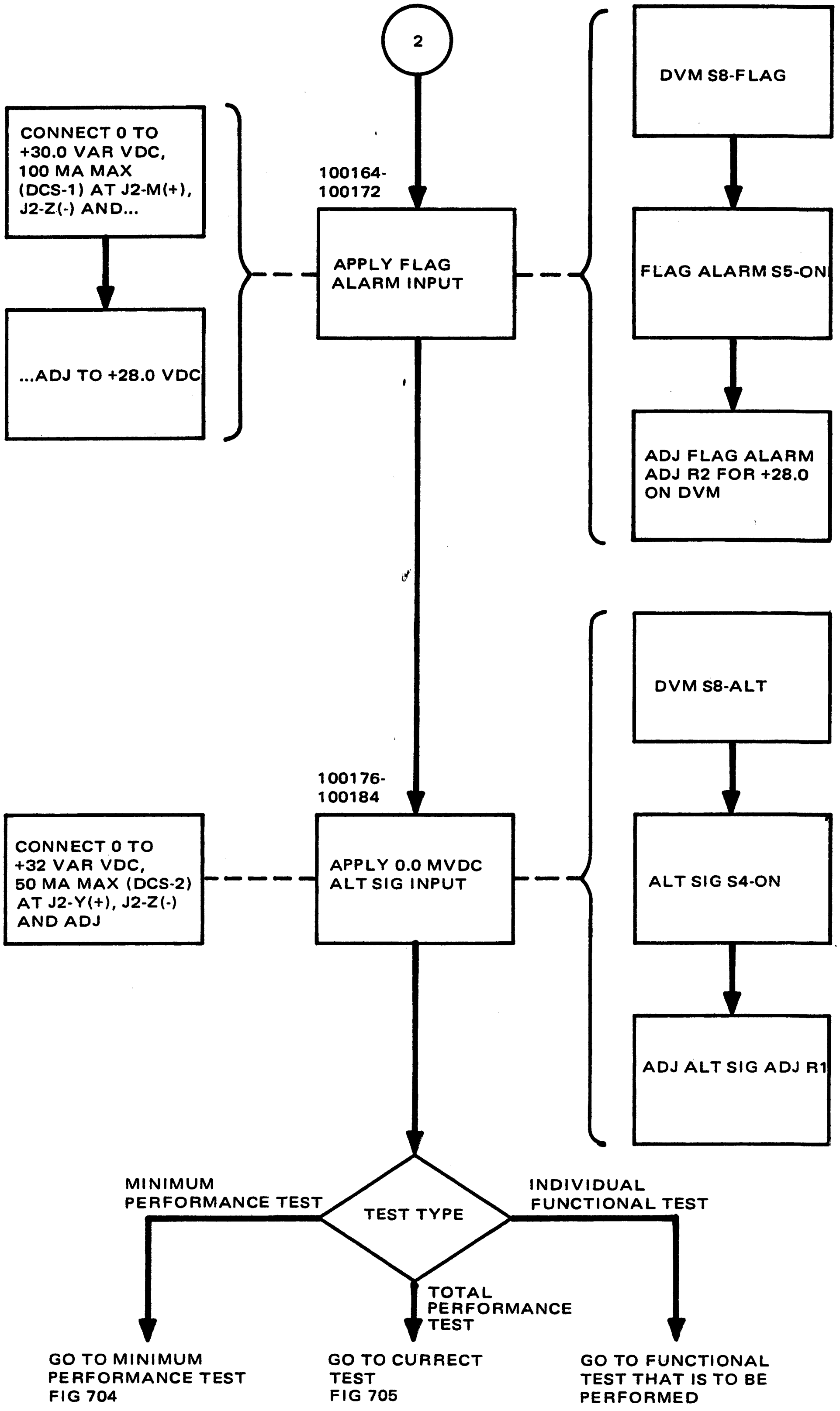
Pretest Procedure
Figure 702 (Sheet 1 of 3)


1
100136-
100144
CONNECT +30.000 ± 0.060 VDC, 50 MA MAX (DCP-1) AT J2-J(+), J2-L(-)
APPLY +30 VDC REF INPUT
+30 VDC, S2-ON.
ADJ +30 VDC ADJ R3 FOR +30.000 VDC ON DVM
DVM S8- -30 VDC
100148-
100156
CONNECT -30.000 ± 0.060 VDC, 50 MA MAX (DCP-2) AT J2-L(+), J2-H(-)
APPLY -30 VDC REF INPUT
-30 VDC S3-ON.
ADJ -30 VDC ADJ R4 FOR -30.000 VDC ON DVM
100160
CONNECT +5.0 VDC AT J2-g (+), J2-D(-)
APPLY LIGHTING INPUT
CONNECT +5.0 VDC AT J7(+), J8(-)
IA
SH 2A

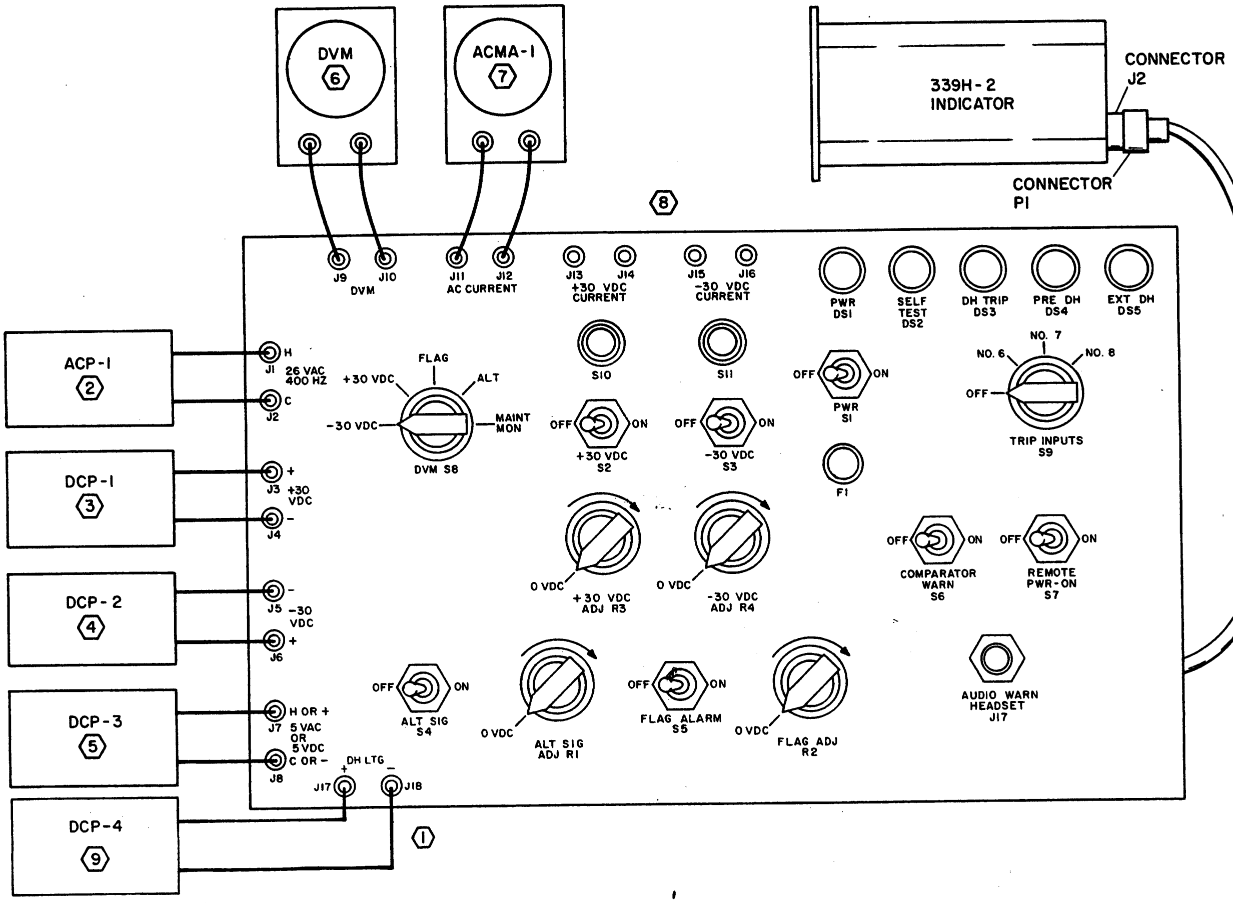
Pretest Procedure
Figure 702 (Sheet 2 of 3)


1A
522-4825-006
YES
NO
CONNECT AT J2-h(+), J2-j(−).
APPLY DH LGT INPUT. 5 VDC FOR 522-4825-002 OR ...
CONNECT AT J17(+), J18(−).
... 28 VDC FOR 522-4825-004, 522-4825-005, 522-4825-008.
JUMPER J2-h TO J2-j.
APPLY DH LIGHTING.
JUMPER DH LTG + J17 TO − J18.
2
SH 3

Pretest Procedure
Figure 702 (Sheet 2A)


2
CONNECT 0 TO +30.0 VAR VDC, 100 MA MAX (DCS-1) AT J2-M(+), J2-Z(-) AND...
...ADJ TO +28.0 VDC
100164-100172
APPLY FLAG ALARM INPUT
DVM S8-FLAG
FLAG ALARM S5-ON
ADJ FLAG ALARM ADJ R2 FOR +28.0 ON DVM
DVM S8-ALT
100176-100184
CONNECT 0 TO +32 VAR VDC, 50 MA MAX (DCS-2) AT J2-Y(+), J2-Z(-) AND ADJ
APPLY 0.0 MVDC ALT SIG INPUT
ALT SIG S4-ON
ADJ ALT SIG ADJ R1
MINIMUM PERFORMANCE TEST
TEST TYPE
INDIVIDUAL FUNCTIONAL TEST
TOTAL PERFORMANCE TEST
GO TO MINIMUM PERFORMANCE TEST FIG 704
GO TO CURRECT TEST FIG 705
GO TO FUNCTIONAL TEST THAT IS TO BE PERFORMED

Pretest Procedure
Figure 702 (Sheet 3 of 3)



NOTES:

① POSITION ALL SWITCHES AND CONTROLS AS SHOWN.

② ACP-1: AC PWR SUPPLY, 26 ±3VAC, 400HZ ±20HZ; MAX CUR 1 A.

③ DCP-1: DC PWR SUPPLY, VARIABLE, 0 TO +32VDC; MAX CUR 0.05 A; REGULATION AND RIPPLE LESS THAN 0.1%.

④ DCP-2: DC PWR SUPPLY, VARIABLE, 0 TO -32VDC; MAX CUR 0.05 A; REGULATION AND RIPPLE LESS THAN 0.1%.

⑤ DCP-3: DC PWR SUPPLY, FIXED, +5.0VDC; MAX CUR 0.03 A.

⑥ DVM: DIGITAL VOLTMETER, 0.000 TO 32.000 V; ACCURACY ±2% FULL SCALE; IMPD, 5 OHMS MAX.

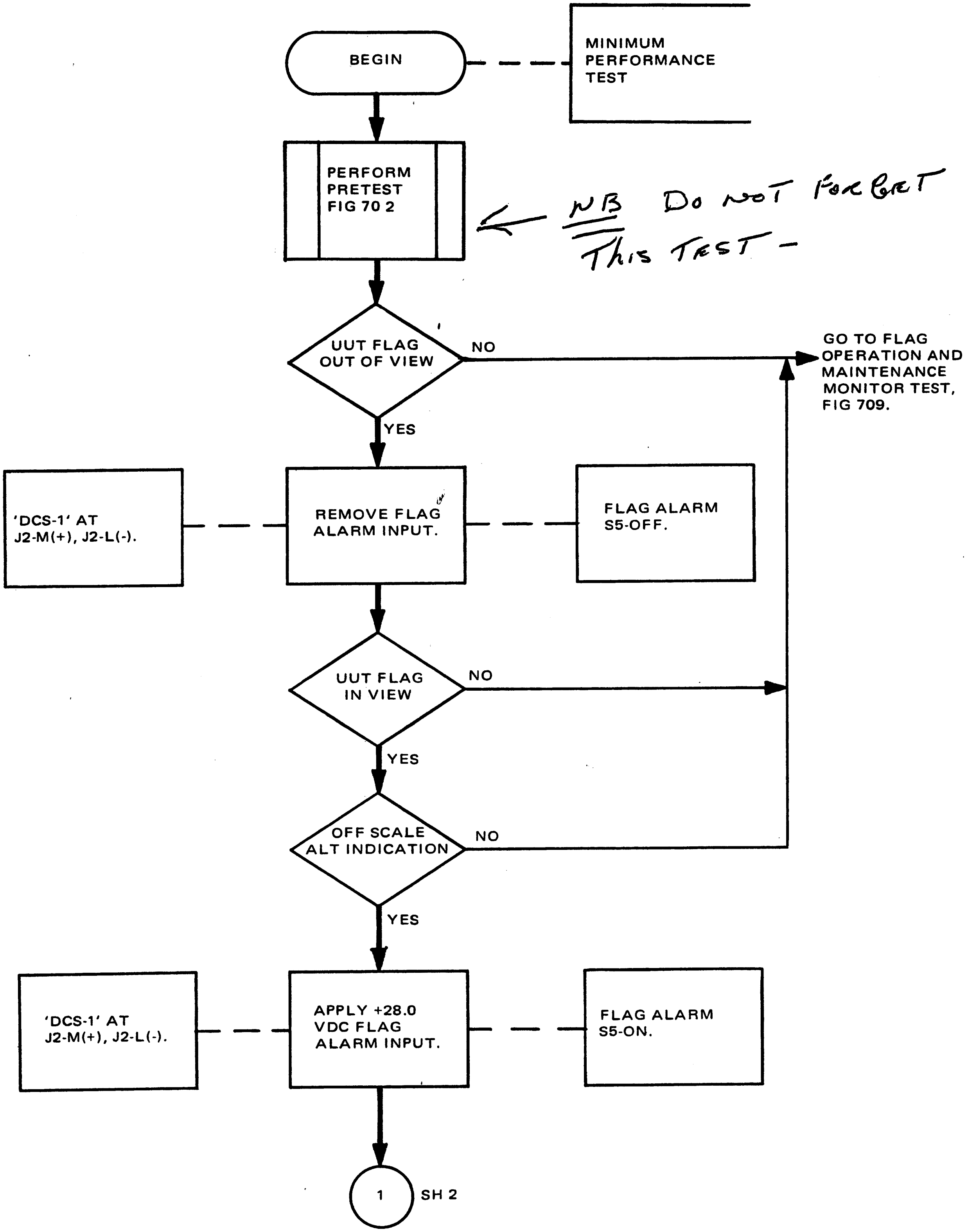
⑦ ACMA-1: AC MILLIAMMETER, 0 TO 800 MA; ACCURACY, ±5% OF FULL SCALE AT 400 HZ; IMPD, 2 OHMS MAX.

⑧ DC MILLIAMMETER: 0 TO 50 MA; ACCURACY ±2% OF FULL SCALE; IMPD, 5 OHMS MAX.

⑨ DCP-4: 522-4825-002 = DC PWR SUPPLY, FIXED, +5.0VDC; MAX CUR 0.03 A
522-4825-004, 522-4825-005, 522-4825-006 = DC POWER SUPPLY, FIXED, +28VDC; MAX CUR 0.03A.

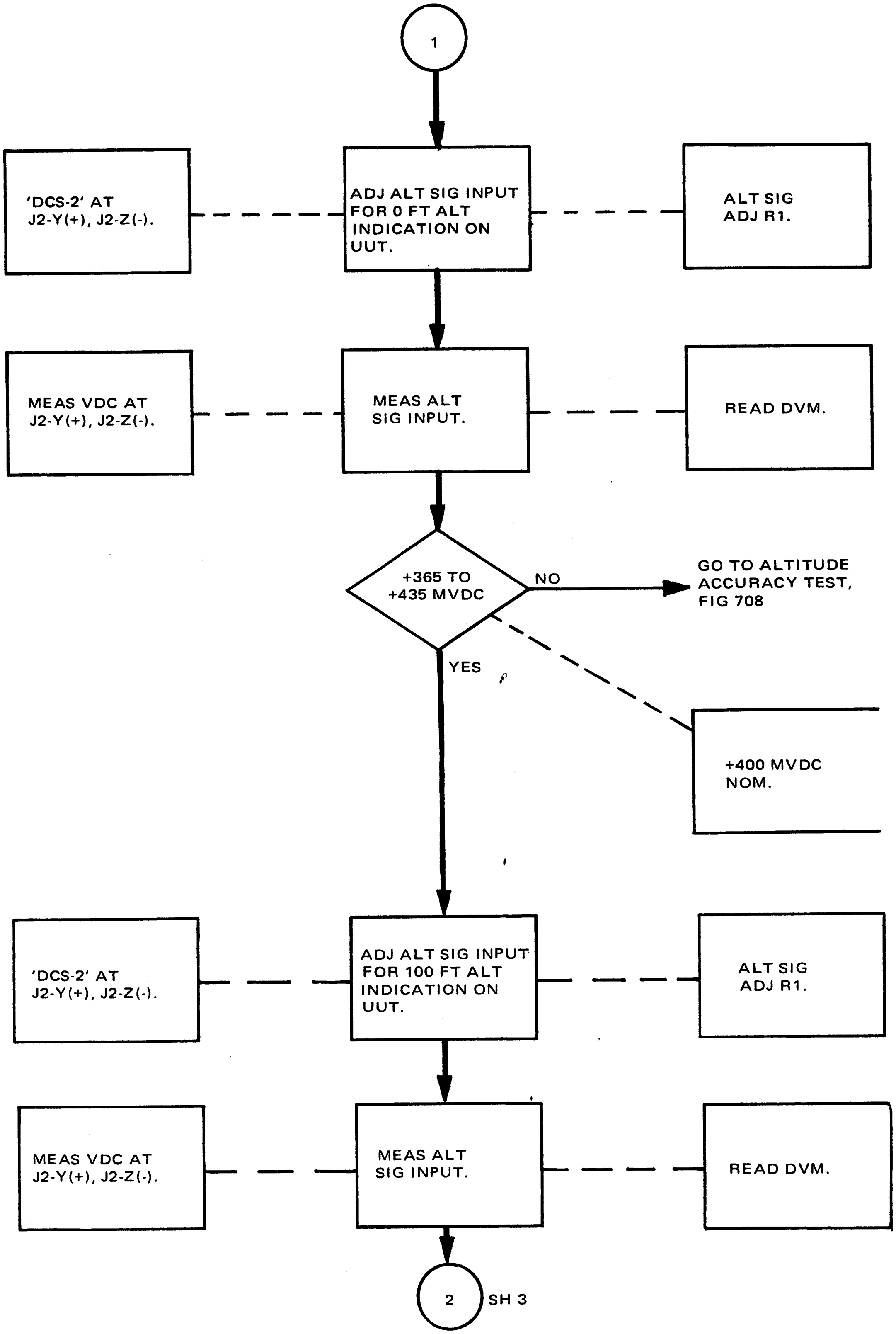
TP2-3666-014

Test Setup
Figure 703

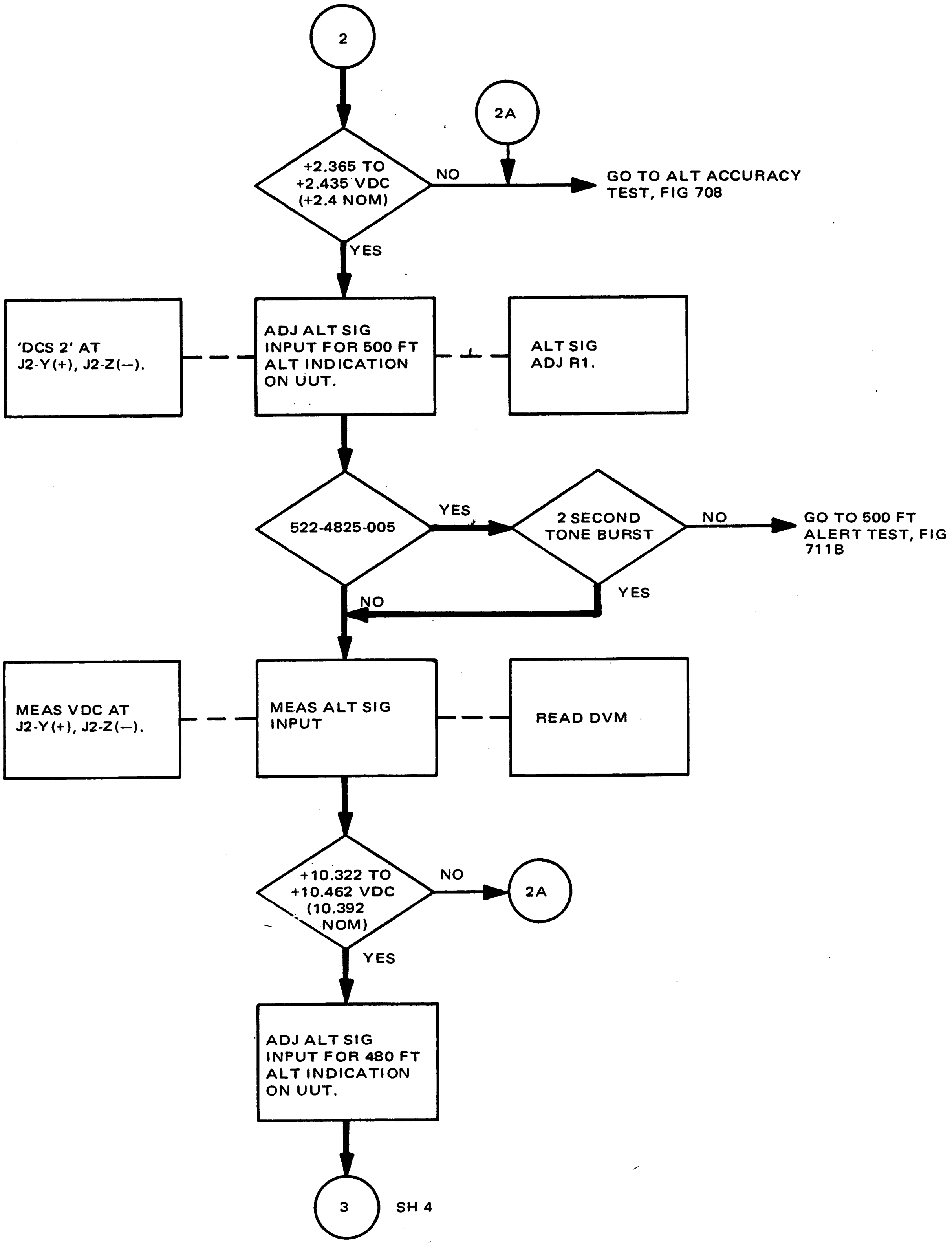


NB Do not forget This test -

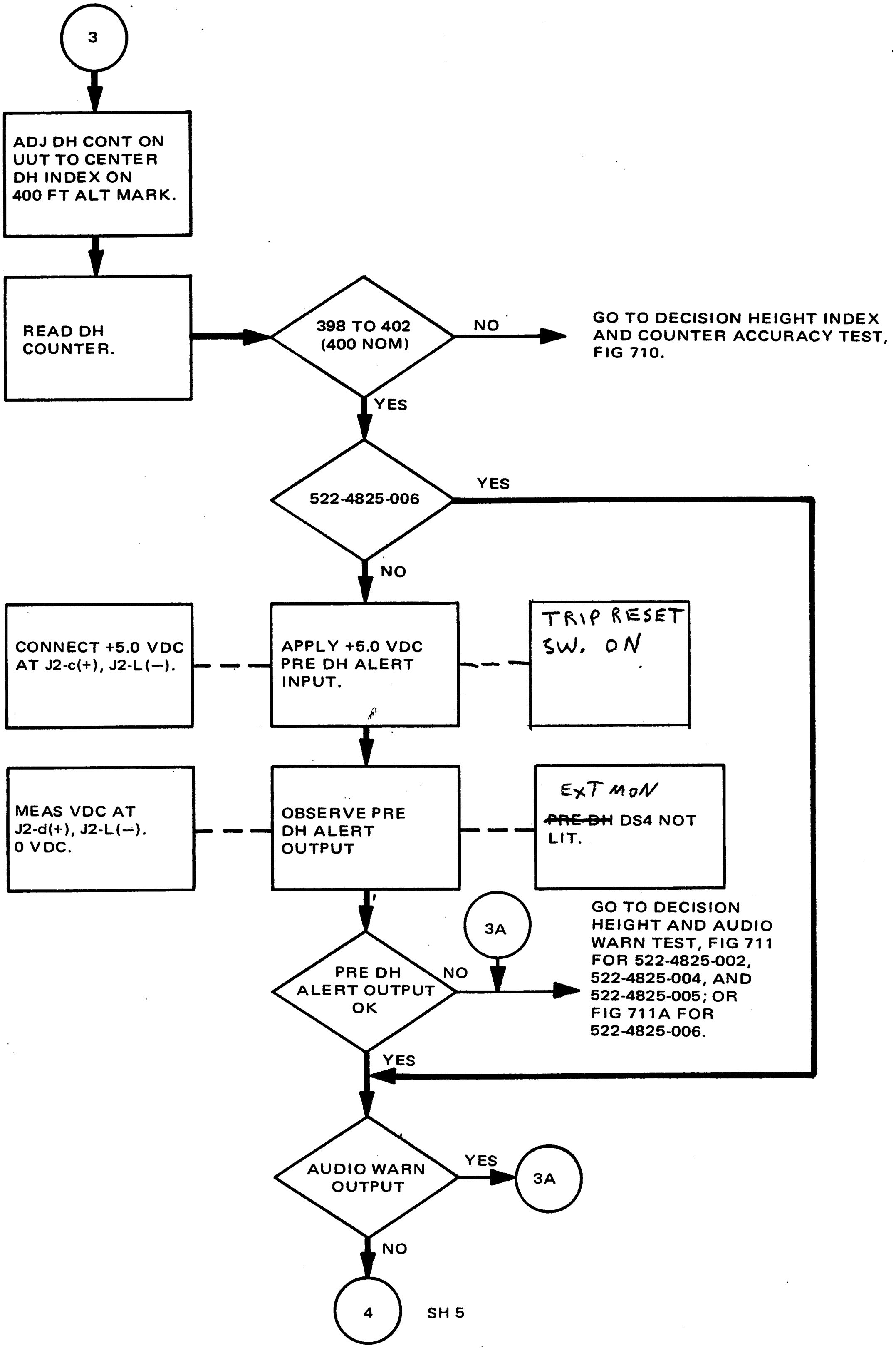
Minimum Performance Test
Figure 704 (Sheet 1 of 19)


1
'DCS-2' AT J2-Y(+), J2-Z(-).
ADJ ALT SIG INPUT FOR 0 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
MEAS VDC AT J2-Y(+), J2-Z(-).
MEAS ALT SIG INPUT.
READ DVM.
+365 TO +435 MVDC
NO
GO TO ALTITUDE ACCURACY TEST, FIG 708
YES
+400 MVDC NOM.
'DCS-2' AT J2-Y(+), J2-Z(-).
ADJ ALT SIG INPUT FOR 100 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
MEAS VDC AT J2-Y(+), J2-Z(-).
MEAS ALT SIG INPUT.
READ DVM.
2
SH 3

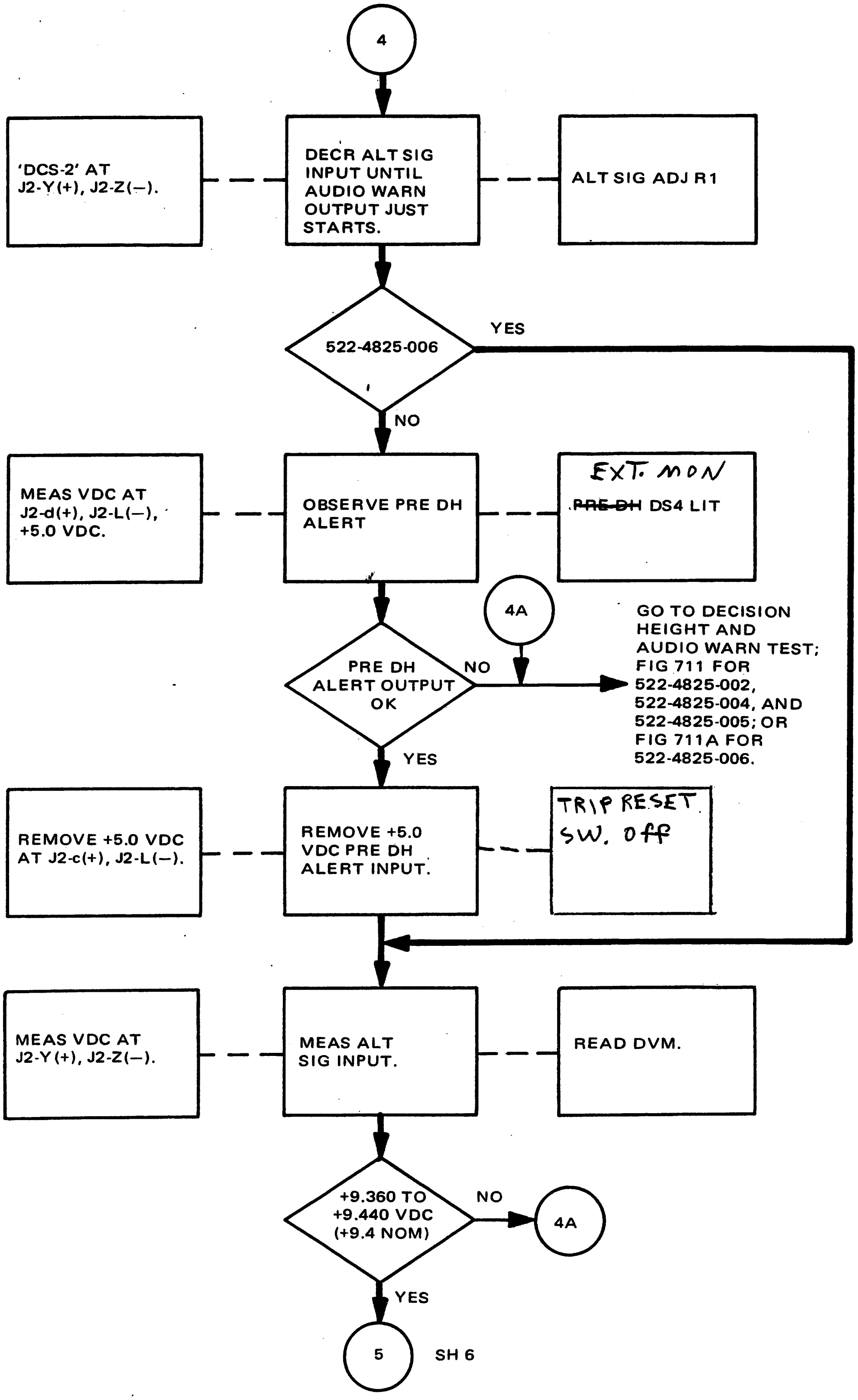
Minimum Performance Test
Figure 704 (Sheet 2 of 16)


2
2A
+2.365 TO
+2.435 VDC
(+2.4 NOM)
NO
GO TO ALT ACCURACY TEST, FIG 708
YES
'DCS 2' AT J2-Y(+), J2-Z(−).
ADJ ALT SIG INPUT FOR 500 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
522-4825-005
YES
2 SECOND TONE BURST
NO
GO TO 500 FT ALERT TEST, FIG 711B
YES
NO
MEAS VDC AT J2-Y(+), J2-Z(−).
MEAS ALT SIG INPUT
READ DVM
+10.322 TO
+10.462 VDC
(10.392
NOM)
NO
2A
YES
ADJ ALT SIG INPUT FOR 480 FT ALT INDICATION ON UUT.
3
SH 4

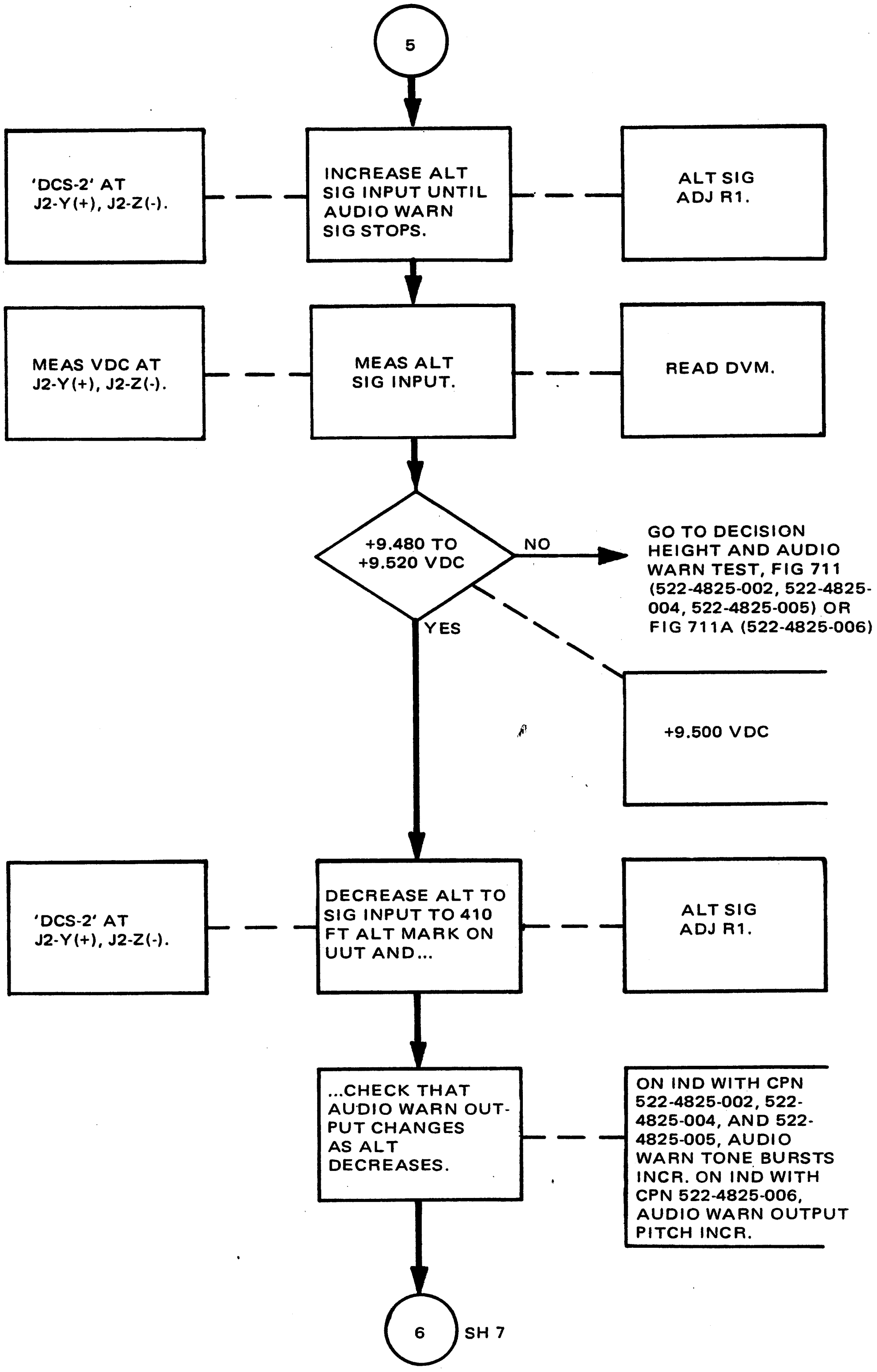
Minimum Performance Test
Figure 704 (Sheet 3 of 16)


3
ADJ DH CONT ON UUT TO CENTER DH INDEX ON 400 FT ALT MARK.
READ DH COUNTER.
398 TO 402 (400 NOM)
NO
GO TO DECISION HEIGHT INDEX AND COUNTER ACCURACY TEST, FIG 710.
YES
522-4825-006
YES
NO
CONNECT +5.0 VDC AT J2-c(+), J2-L(−).
APPLY +5.0 VDC PRE DH ALERT INPUT.
TRIP RESET SW. ON
MEAS VDC AT J2-d(+), J2-L(−). 0 VDC.
OBSERVE PRE DH ALERT OUTPUT
EXT MON
~~PRE DH~~ DS4 NOT LIT.
3A
PRE DH ALERT OUTPUT OK
NO
GO TO DECISION HEIGHT AND AUDIO WARN TEST, FIG 711 FOR 522-4825-002, 522-4825-004, AND 522-4825-005; OR FIG 711A FOR 522-4825-006.
YES
AUDIO WARN OUTPUT
YES
3A
NO
4
SH 5

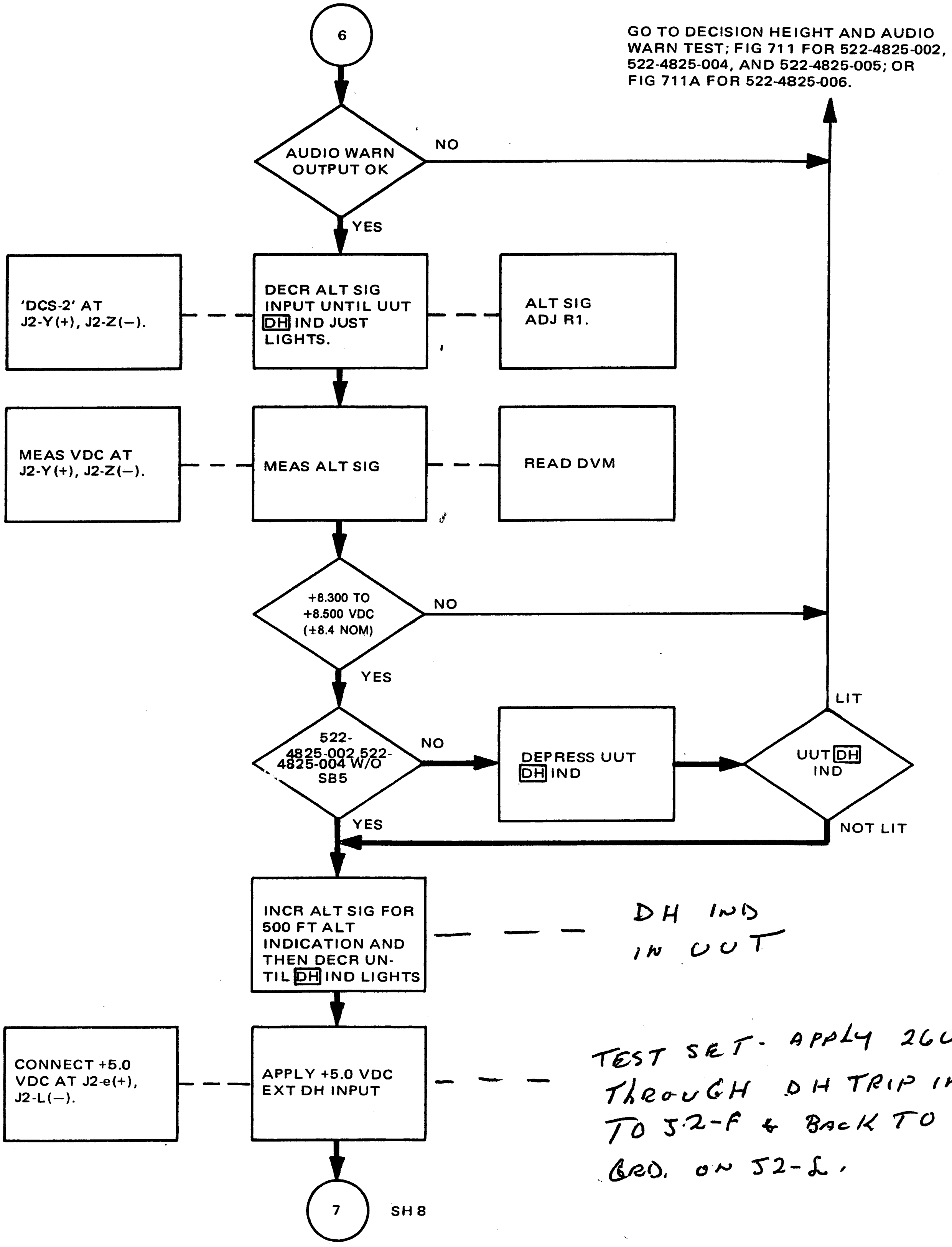
Minimum Performance Test
Figure 704 (Sheet 4 of 16)


4
'DCS-2' AT J2-Y(+), J2-Z(−).
DECR ALT SIG INPUT UNTIL AUDIO WARN OUTPUT JUST STARTS.
ALT SIG ADJ R1
522-4825-006
YES
NO
MEAS VDC AT J2-d(+), J2-L(−), +5.0 VDC.
OBSERVE PRE DH ALERT
EXT. MON
~~PRE DH~~ DS4 LIT
4A
PRE DH ALERT OUTPUT OK
NO
GO TO DECISION HEIGHT AND AUDIO WARN TEST; FIG 711 FOR 522-4825-002, 522-4825-004, AND 522-4825-005; OR FIG 711A FOR 522-4825-006.
YES
REMOVE +5.0 VDC AT J2-c(+), J2-L(−).
REMOVE +5.0 VDC PRE DH ALERT INPUT.
TRIP RESET SW. off
MEAS VDC AT J2-Y(+), J2-Z(−).
MEAS ALT SIG INPUT.
READ DVM.
+9.360 TO +9.440 VDC (+9.4 NOM)
NO
4A
YES
5
SH 6

Minimum Performance Test
Figure 704 (Sheet 5 of 16)


5
'DCS-2' AT J2-Y(+), J2-Z(-).
INCREASE ALT SIG INPUT UNTIL AUDIO WARN SIG STOPS.
ALT SIG ADJ R1.
MEAS VDC AT J2-Y(+), J2-Z(-).
MEAS ALT SIG INPUT.
READ DVM.
+9.480 TO +9.520 VDC
NO
GO TO DECISION HEIGHT AND AUDIO WARN TEST, FIG 711 (522-4825-002, 522-4825-004, 522-4825-005) OR FIG 711A (522-4825-006)
YES
+9.500 VDC
'DCS-2' AT J2-Y(+), J2-Z(-).
DECREASE ALT TO SIG INPUT TO 410 FT ALT MARK ON UUT AND...
ALT SIG ADJ R1.
...CHECK THAT AUDIO WARN OUTPUT CHANGES AS ALT DECREASES.
ON IND WITH CPN 522-4825-002, 522-4825-004, AND 522-4825-005, AUDIO WARN TONE BURSTS INCR. ON IND WITH CPN 522-4825-006, AUDIO WARN OUTPUT PITCH INCR.
6
SH 7

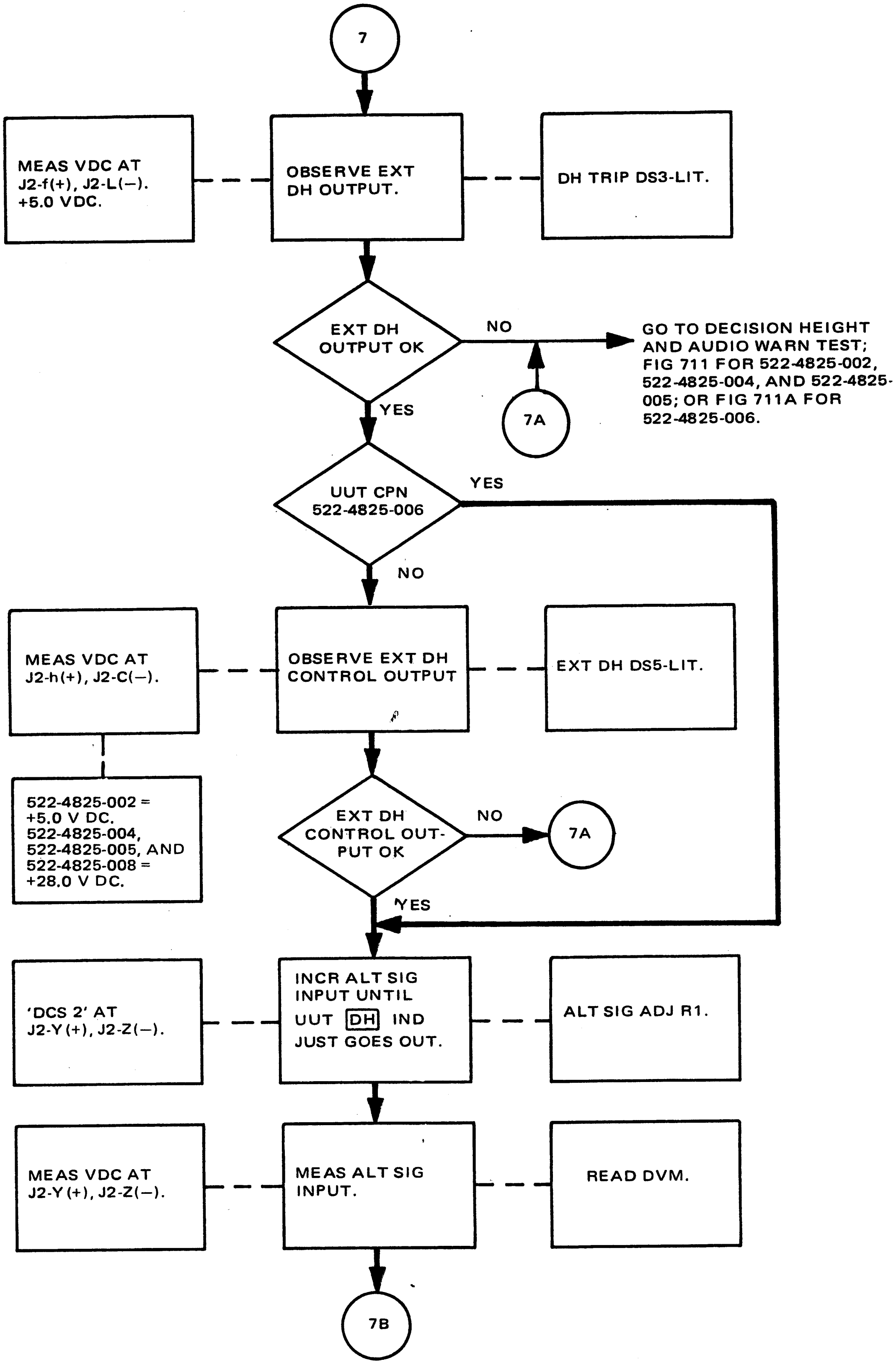
Minimum Performance Test
Figure 704 (Sheet 6 of 16)


6
GO TO DECISION HEIGHT AND AUDIO WARN TEST; FIG 711 FOR 522-4825-002, 522-4825-004, AND 522-4825-005; OR FIG 711A FOR 522-4825-006.
AUDIO WARN OUTPUT OK
NO
YES
'DCS-2' AT J2-Y(+), J2-Z(−).
DECR ALT SIG INPUT UNTIL UUT DH IND JUST LIGHTS.
ALT SIG ADJ R1.
MEAS VDC AT J2-Y(+), J2-Z(−).
MEAS ALT SIG
READ DVM
+8.300 TO +8.500 VDC (+8.4 NOM)
NO
YES
522-4825-002 522-4825-004 W/O SB5
NO
DEPRESS UUT DH IND
UUT DH IND
LIT
NOT LIT
YES
INCR ALT SIG FOR 500 FT ALT INDICATION AND THEN DECR UNTIL DH IND LIGHTS
CONNECT +5.0 VDC AT J2-e(+), J2-L(−).
APPLY +5.0 VDC EXT DH INPUT
7
SH 8

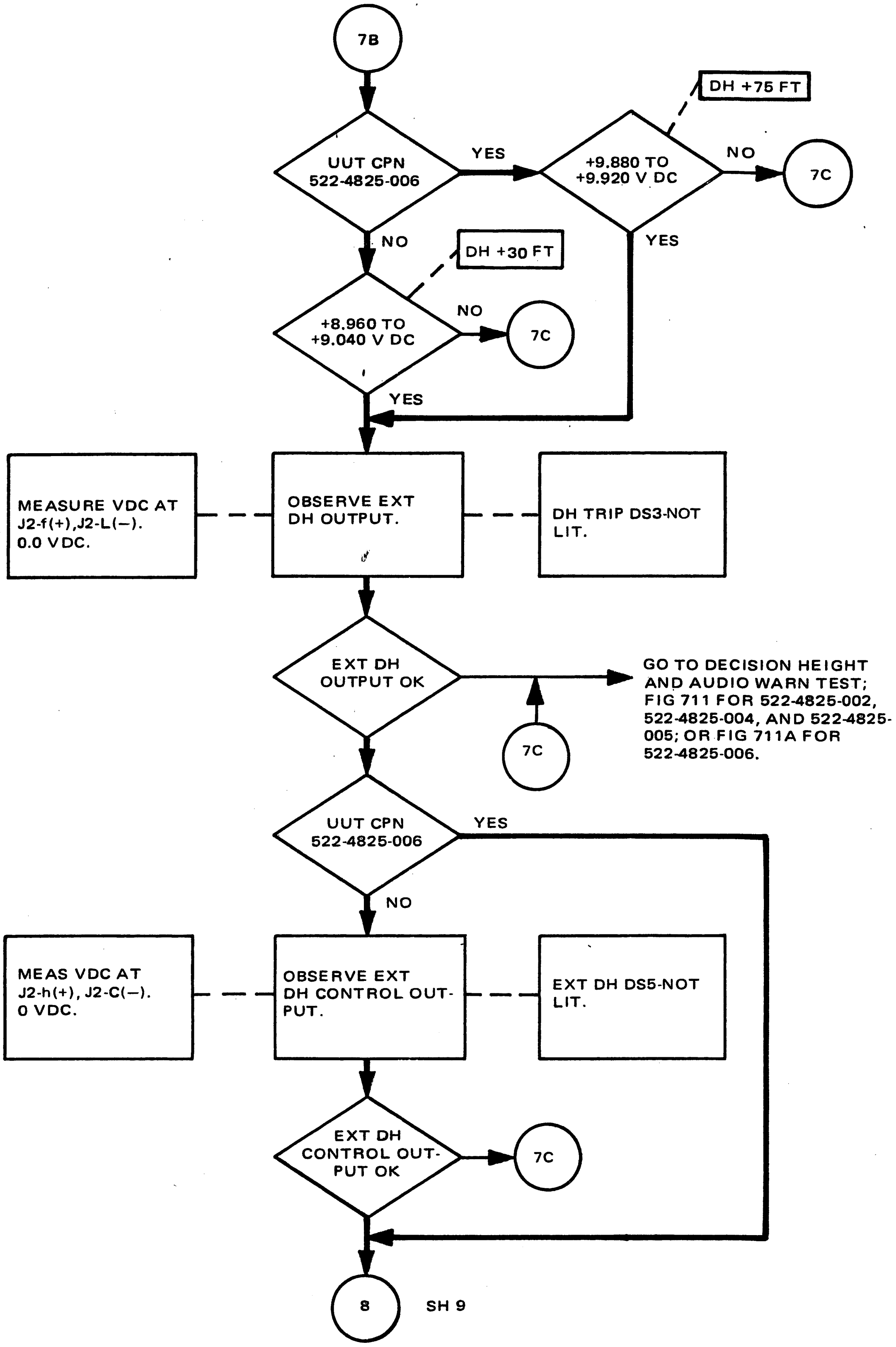
DH IND
IN OUT

TEST SET- APPLY 26VAC
THROUGH DH TRIP IND.
TO J2-F & BACK TO
GRD. ON J2-L.

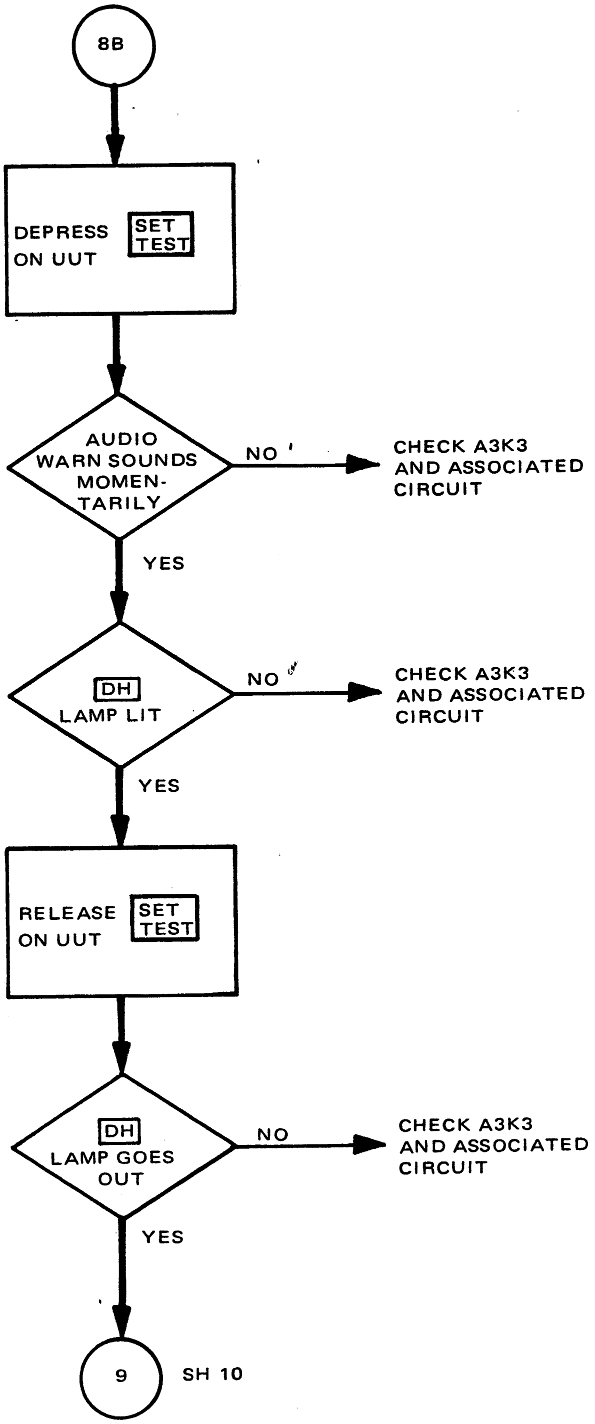
Minimum Performance Test
Figure 704 (Sheet 7)


7
MEAS VDC AT J2-f(+), J2-L(–). +5.0 VDC.
OBSERVE EXT DH OUTPUT.
DH TRIP DS3-LIT.
EXT DH OUTPUT OK
NO
GO TO DECISION HEIGHT AND AUDIO WARN TEST; FIG 711 FOR 522-4825-002, 522-4825-004, AND 522-4825-005; OR FIG 711A FOR 522-4825-006.
7A
YES
UUT CPN 522-4825-006
YES
NO
MEAS VDC AT J2-h(+), J2-C(–).
OBSERVE EXT DH CONTROL OUTPUT
EXT DH DS5-LIT.
522-4825-002 = +5.0 V DC. 522-4825-004, 522-4825-005, AND 522-4825-008 = +28.0 V DC.
EXT DH CONTROL OUTPUT OK
NO
7A
YES
'DCS 2' AT J2-Y(+), J2-Z(–).
INCR ALT SIG INPUT UNTIL UUT DH IND JUST GOES OUT.
ALT SIG ADJ R1.
MEAS VDC AT J2-Y(+), J2-Z(–).
MEAS ALT SIG INPUT.
READ DVM.
7B

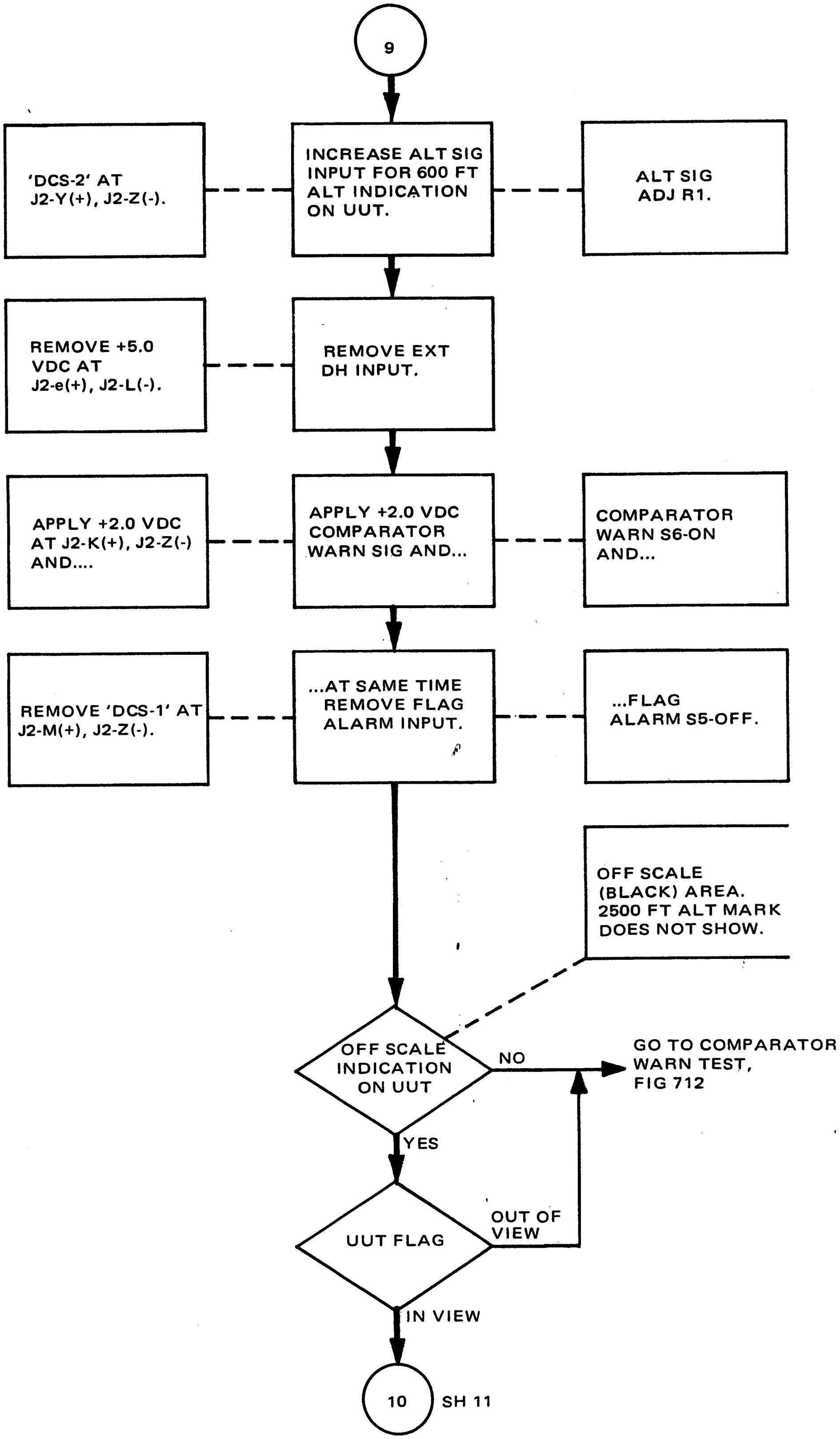
Minimum Performance Test
Figure 704 (Sheet 8)


7B
UUT CPN 522-4825-006
YES
NO
+9.880 TO +9.920 V DC
DH +75 FT
NO
7C
YES
+8.960 TO +9.040 V DC
DH +30 FT
NO
7C
YES
MEASURE VDC AT J2-f(+),J2-L(−). 0.0 VDC.
OBSERVE EXT DH OUTPUT.
DH TRIP DS3-NOT LIT.
EXT DH OUTPUT OK
GO TO DECISION HEIGHT AND AUDIO WARN TEST; FIG 711 FOR 522-4825-002, 522-4825-004, AND 522-4825-005; OR FIG 711A FOR 522-4825-006.
7C
UUT CPN 522-4825-006
YES
NO
MEAS VDC AT J2-h(+), J2-C(−). 0 VDC.
OBSERVE EXT DH CONTROL OUTPUT.
EXT DH DS5-NOT LIT.
EXT DH CONTROL OUTPUT OK
7C
8
SH 9

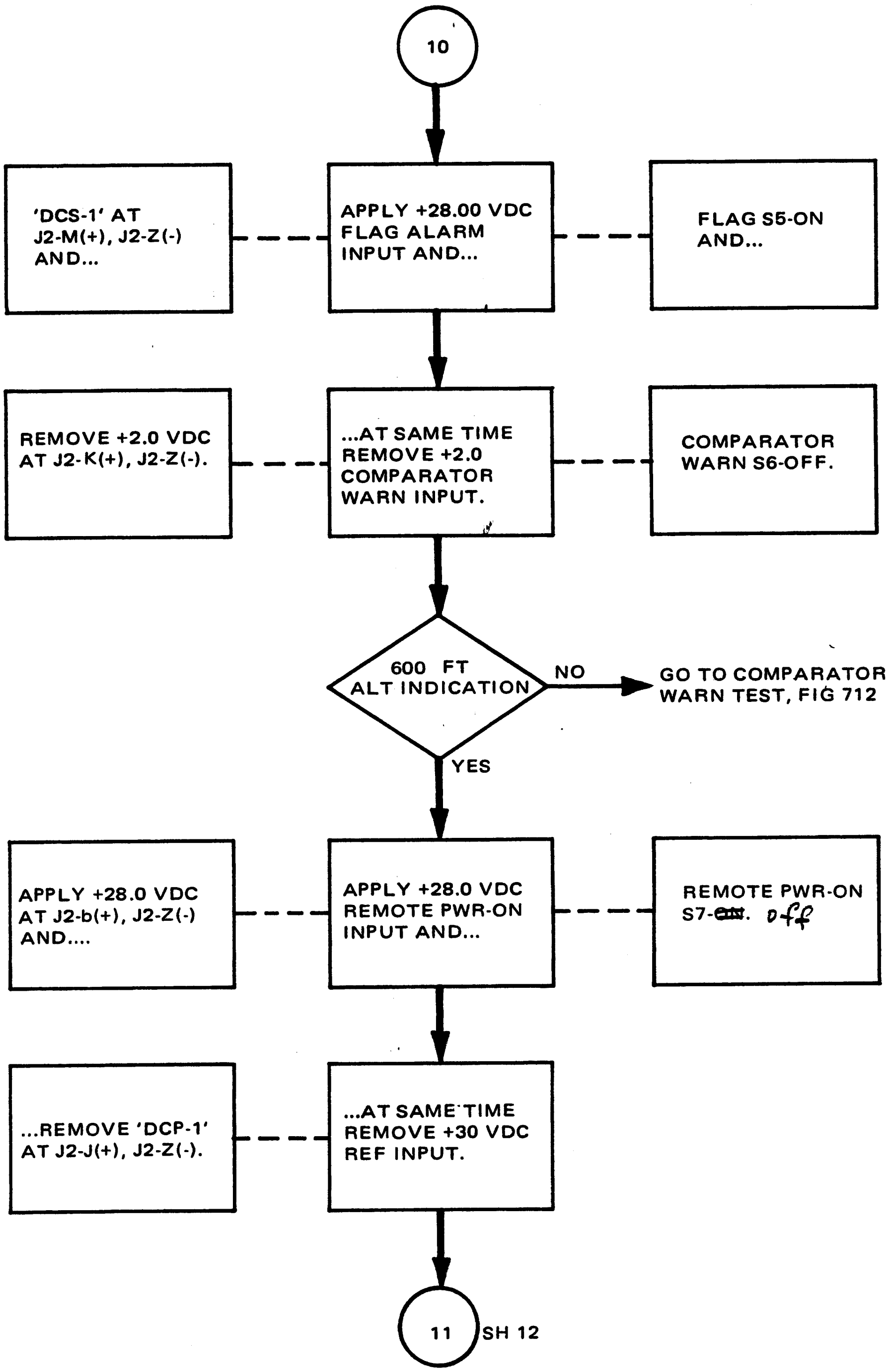
Minimum Performance Test
Figure 704 (Sheet 8A)


8B
DEPRESS SET TEST ON UUT
AUDIO WARN SOUNDS MOMENTARILY
NO
CHECK A3K3 AND ASSOCIATED CIRCUIT
YES
DH LAMP LIT
NO
CHECK A3K3 AND ASSOCIATED CIRCUIT
YES
RELEASE SET TEST ON UUT
DH LAMP GOES OUT
NO
CHECK A3K3 AND ASSOCIATED CIRCUIT
YES
9
SH 10

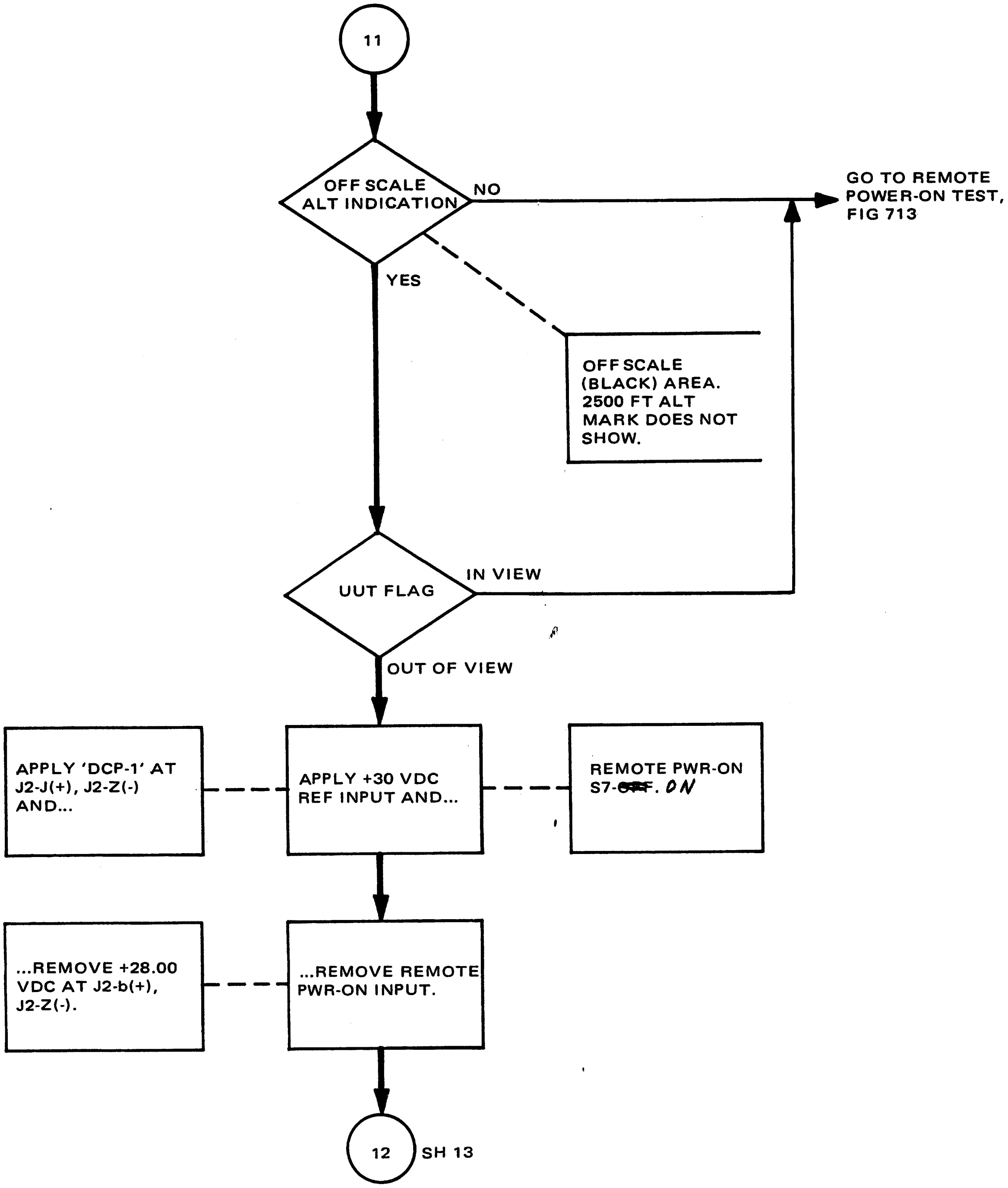
Minimum Performance Test
Figure 704 (Sheet 9B)


9
'DCS-2' AT J2-Y(+), J2-Z(-).
INCREASE ALT SIG INPUT FOR 600 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
REMOVE +5.0 VDC AT J2-e(+), J2-L(-).
REMOVE EXT DH INPUT.
APPLY +2.0 VDC AT J2-K(+), J2-Z(-) AND....
APPLY +2.0 VDC COMPARATOR WARN SIG AND...
COMPARATOR WARN S6-ON AND...
REMOVE 'DCS-1' AT J2-M(+), J2-Z(-).
...AT SAME TIME REMOVE FLAG ALARM INPUT.
...FLAG ALARM S5-OFF.
OFF SCALE (BLACK) AREA. 2500 FT ALT MARK DOES NOT SHOW.
OFF SCALE INDICATION ON UUT
NO
GO TO COMPARATOR WARN TEST, FIG 712
YES
UUT FLAG
OUT OF VIEW
IN VIEW
10
SH 11

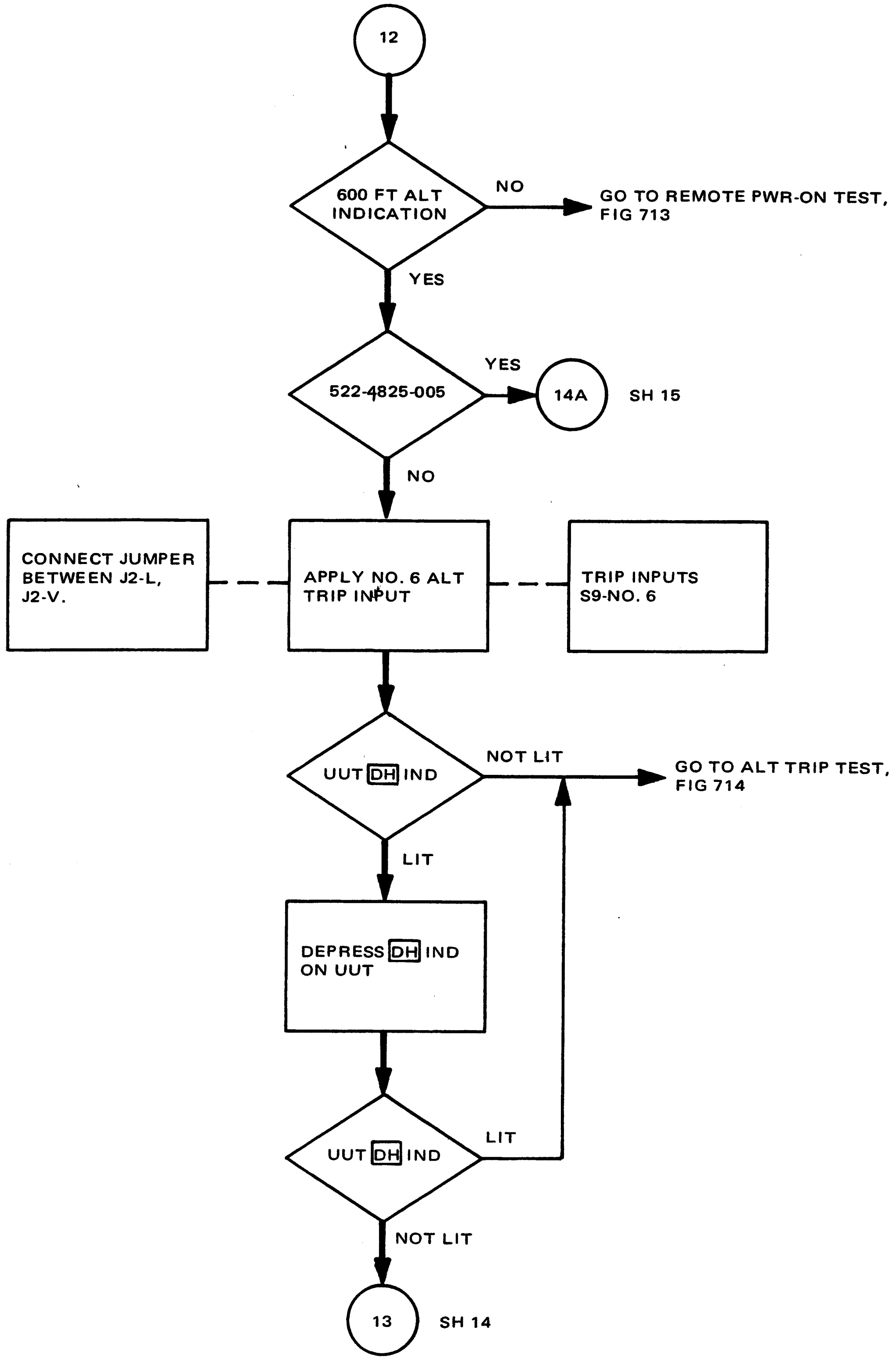
Minimum Performance Test
Figure 704 (Sheet 10)


10
'DCS-1' AT J2-M(+), J2-Z(-) AND...
APPLY +28.00 VDC FLAG ALARM INPUT AND...
FLAG S5-ON AND...
REMOVE +2.0 VDC AT J2-K(+), J2-Z(-).
...AT SAME TIME REMOVE +2.0 COMPARATOR WARN INPUT.
COMPARATOR WARN S6-OFF.
600 FT ALT INDICATION
NO
GO TO COMPARATOR WARN TEST, FIG 712
YES
APPLY +28.0 VDC AT J2-b(+), J2-Z(-) AND....
APPLY +28.0 VDC REMOTE PWR-ON INPUT AND...
REMOTE PWR-ON S7-~~ON~~. off
...REMOVE 'DCP-1' AT J2-J(+), J2-Z(-).
...AT SAME TIME REMOVE +30 VDC REF INPUT.
11
SH 12

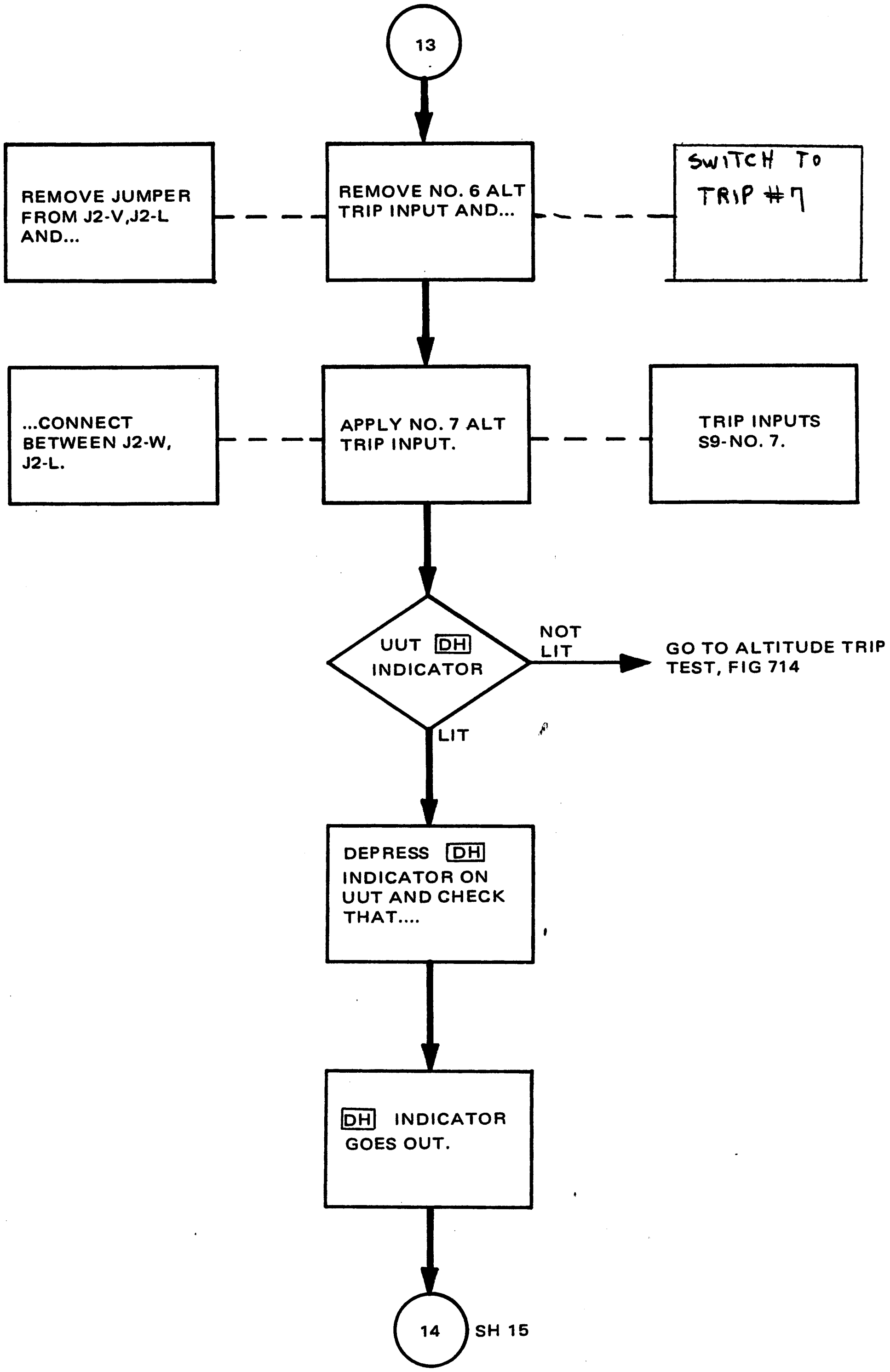
Minimum Performance Test
Figure 704 (Sheet 11 of 16)


11
OFF SCALE ALT INDICATION
NO
GO TO REMOTE POWER-ON TEST, FIG 713
YES
OFF SCALE (BLACK) AREA. 2500 FT ALT MARK DOES NOT SHOW.
UUT FLAG
IN VIEW
OUT OF VIEW
APPLY 'DCP-1' AT J2-J(+), J2-Z(-) AND...
APPLY +30 VDC REF INPUT AND...
REMOTE PWR-ON S7-~~OFF~~. ON
...REMOVE +28.00 VDC AT J2-b(+), J2-Z(-).
...REMOVE REMOTE PWR-ON INPUT.
12
SH 13

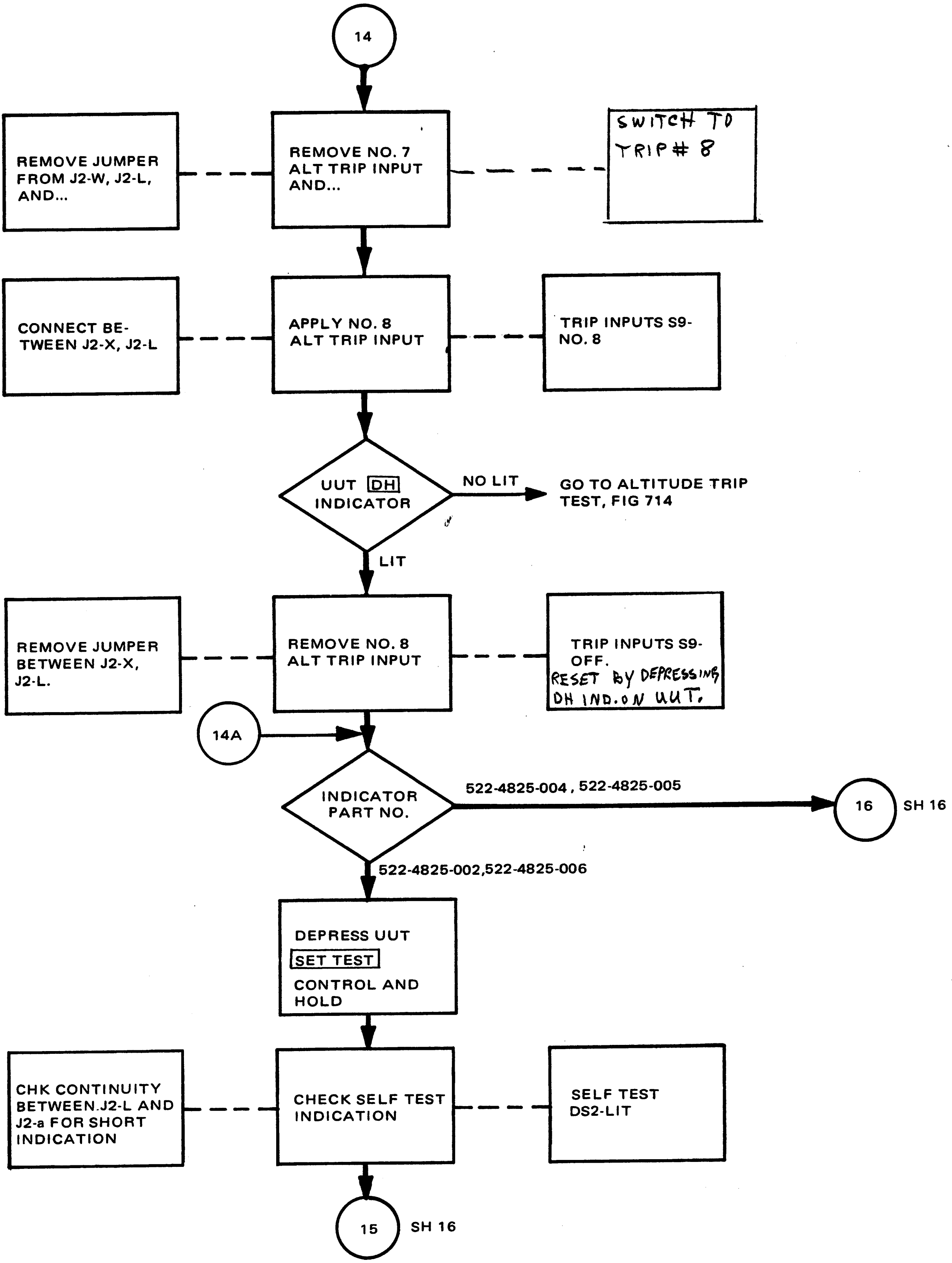
Minimum Performance Test
Figure 704 (Sheet 12 of 16)



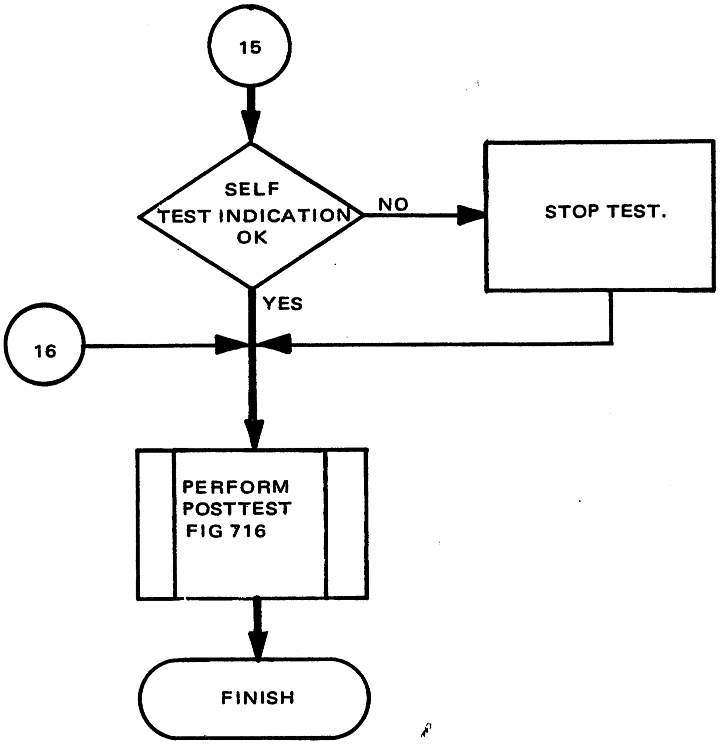
Minimum Performance Test
Figure 704 (Sheet 13 of 16)


13
REMOVE JUMPER FROM J2-V,J2-L AND...
REMOVE NO. 6 ALT TRIP INPUT AND...
SWITCH TO TRIP #7
...CONNECT BETWEEN J2-W, J2-L.
APPLY NO. 7 ALT TRIP INPUT.
TRIP INPUTS S9-NO. 7.
UUT DH INDICATOR
NOT LIT
GO TO ALTITUDE TRIP TEST, FIG 714
LIT
DEPRESS DH INDICATOR ON UUT AND CHECK THAT....
DH INDICATOR GOES OUT.
14
SH 15

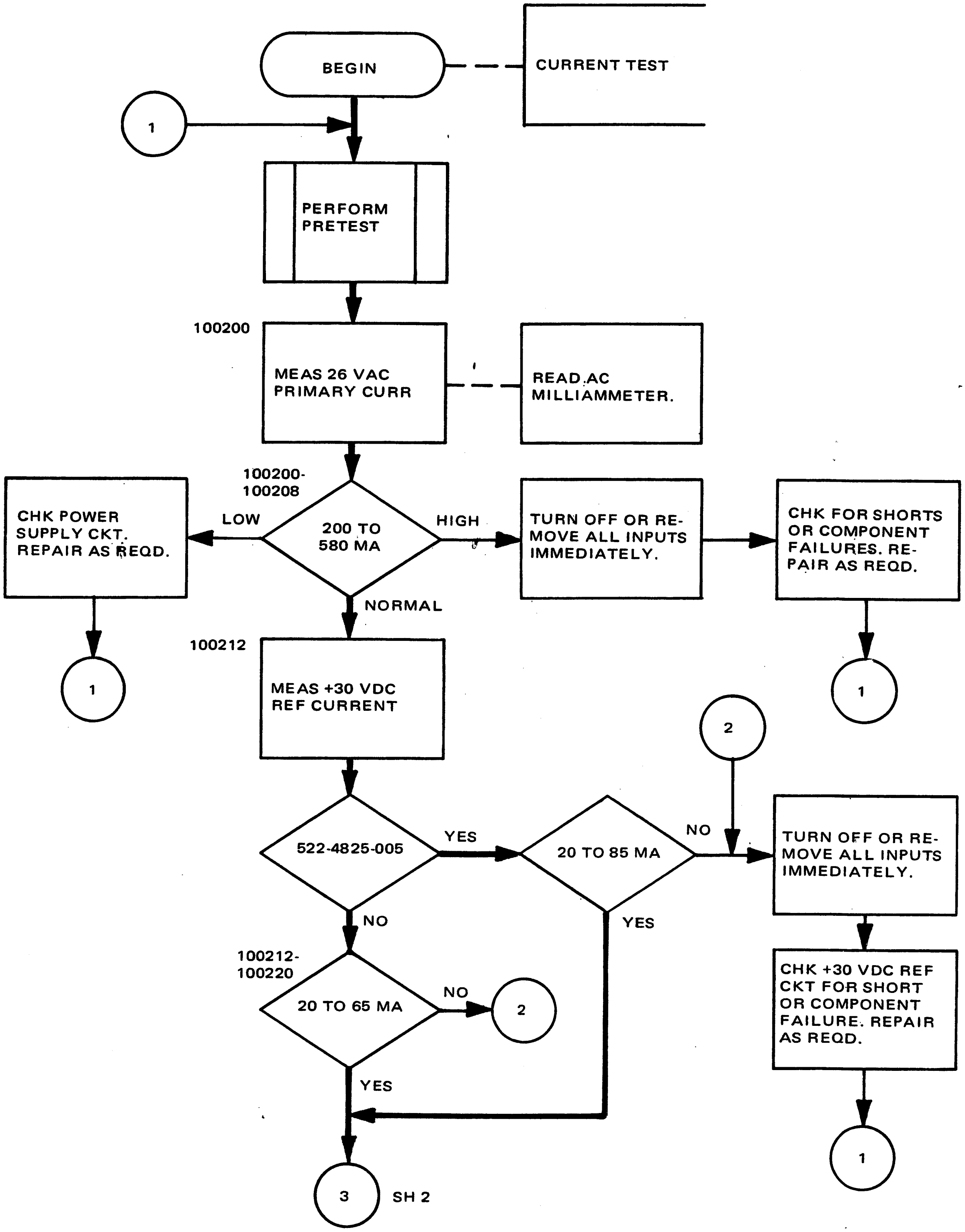
Minimum Performance Test
Figure 704 (Sheet 14 of 16)


14
REMOVE JUMPER FROM J2-W, J2-L, AND...
REMOVE NO. 7 ALT TRIP INPUT AND...
SWITCH TO TRIP # 8
CONNECT BE-TWEEN J2-X, J2-L
APPLY NO. 8 ALT TRIP INPUT
TRIP INPUTS S9-NO. 8
UUT DH INDICATOR
NO LIT
GO TO ALTITUDE TRIP TEST, FIG 714
LIT
REMOVE JUMPER BETWEEN J2-X, J2-L.
REMOVE NO. 8 ALT TRIP INPUT
TRIP INPUTS S9-OFF.
RESET BY DEPRESSING DH IND. ON UUT.
14A
INDICATOR PART NO.
522-4825-004, 522-4825-005
16
SH 16
522-4825-002,522-4825-006
DEPRESS UUT SET TEST CONTROL AND HOLD
CHK CONTINUITY BETWEEN J2-L AND J2-a FOR SHORT INDICATION
CHECK SELF TEST INDICATION
SELF TEST DS2-LIT
15
SH 16

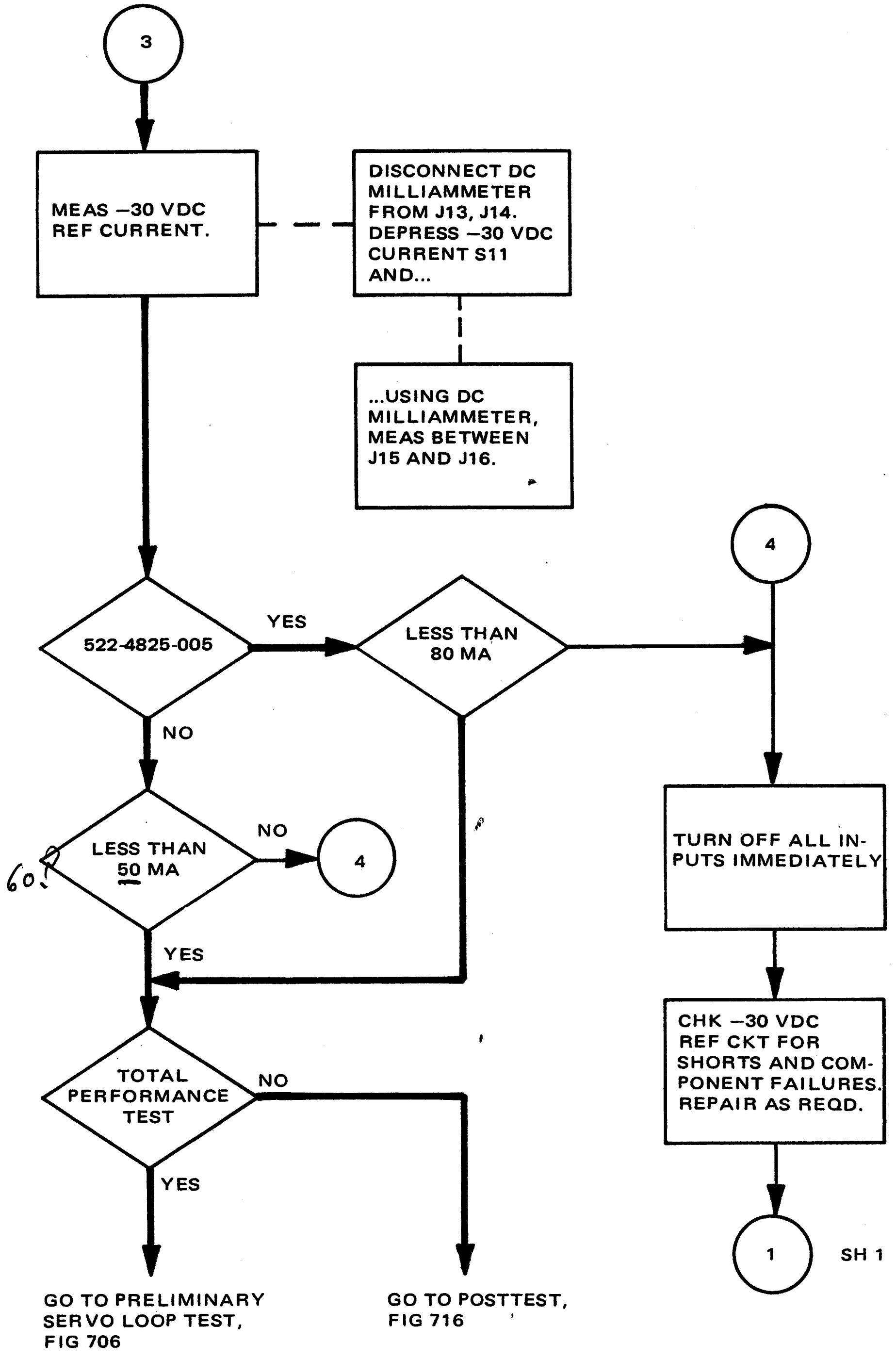
Minimum Performance Test
Figure 704 (Sheet 15 of 16)



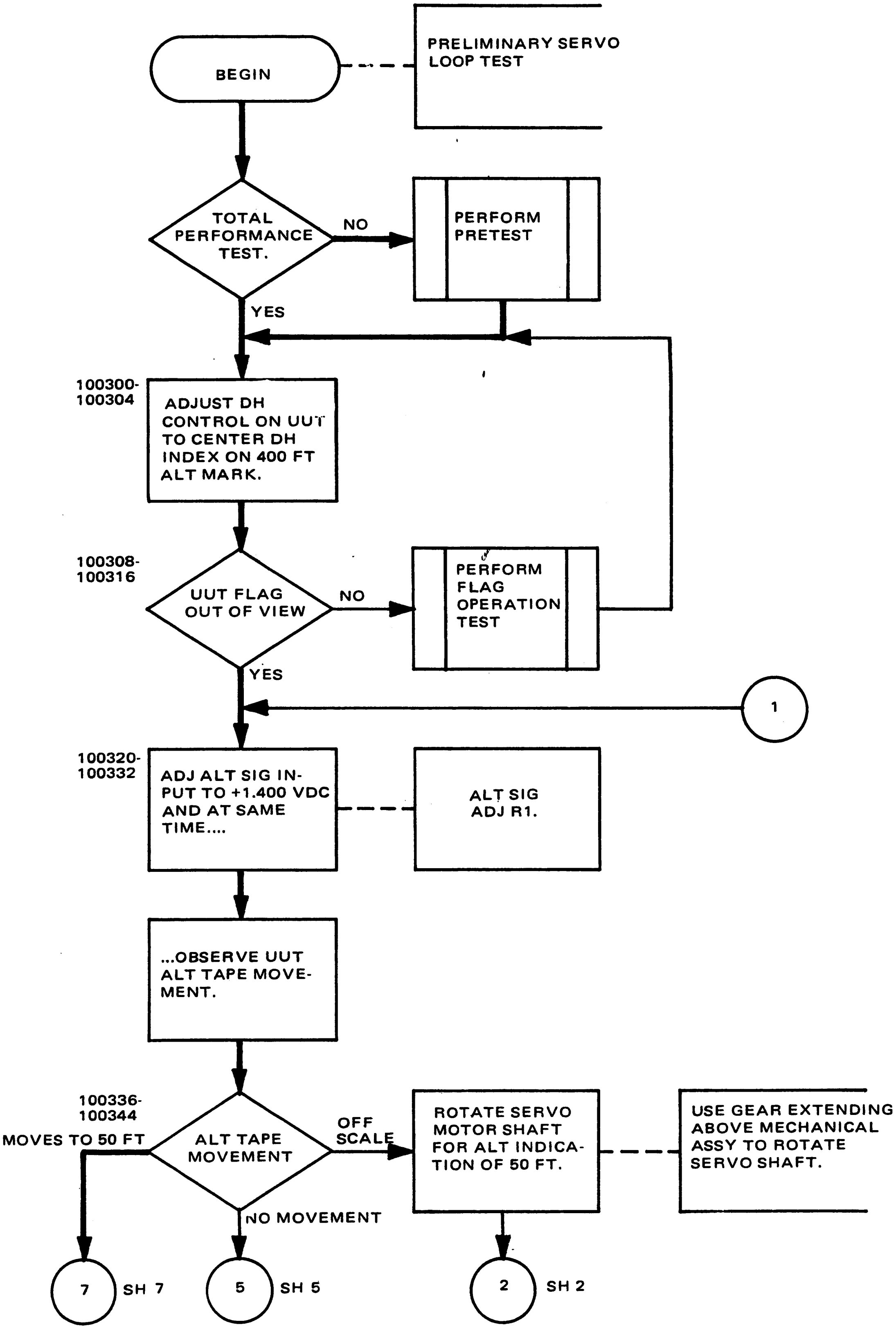
Minimum Performance Test
Figure 704 (Sheet 16 of 16)


BEGIN
CURRENT TEST
1
PERFORM PRETEST
100200
MEAS 26 VAC PRIMARY CURR
READ AC MILLIAMMETER.
100200-100208
200 TO 580 MA
LOW
CHK POWER SUPPLY CKT. REPAIR AS REQD.
1
HIGH
TURN OFF OR REMOVE ALL INPUTS IMMEDIATELY.
CHK FOR SHORTS OR COMPONENT FAILURES. REPAIR AS REQD.
1
NORMAL
100212
MEAS +30 VDC REF CURRENT
522-4825-005
YES
20 TO 85 MA
NO
2
TURN OFF OR REMOVE ALL INPUTS IMMEDIATELY.
CHK +30 VDC REF CKT FOR SHORT OR COMPONENT FAILURE. REPAIR AS REQD.
1
YES
NO
100212-100220
20 TO 65 MA
NO
2
YES
3
SH 2

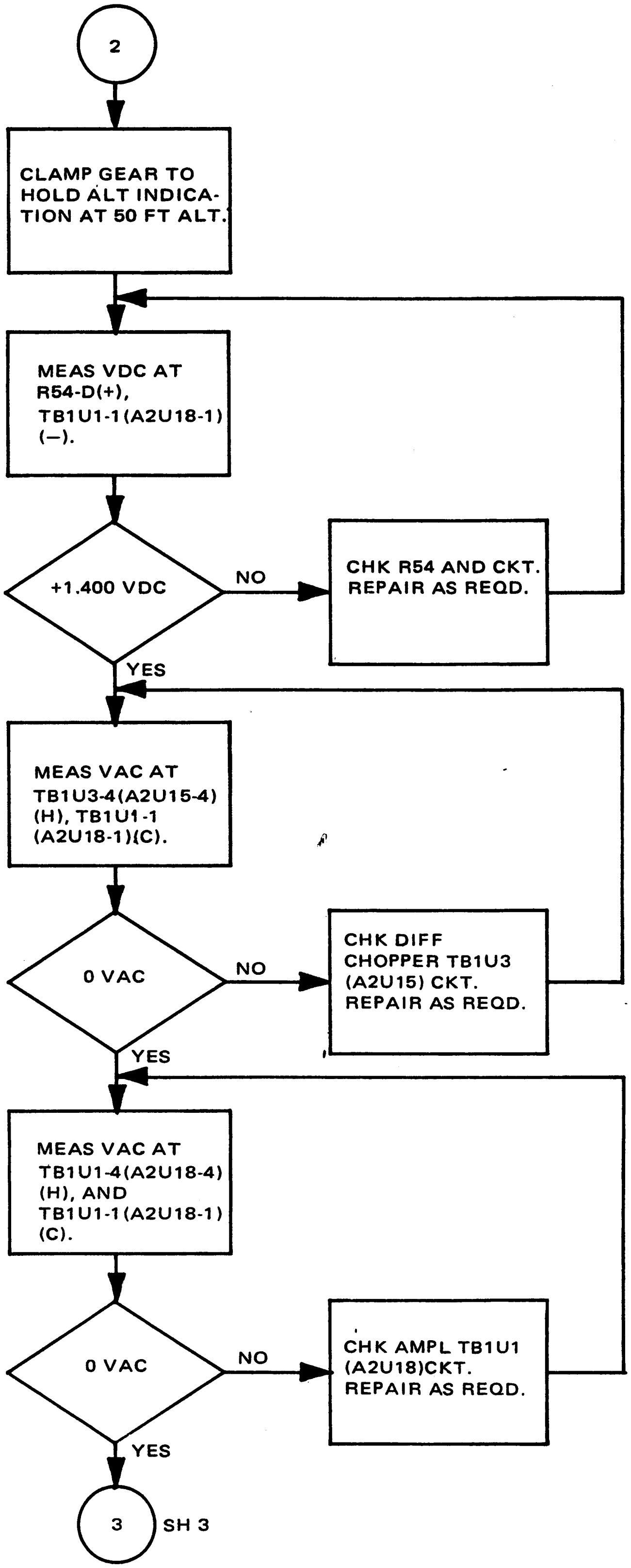
Current Test
Figure 705 (Sheet 1 of 2)


3
MEAS –30 VDC REF CURRENT.
DISCONNECT DC MILLIAMMETER FROM J13, J14. DEPRESS –30 VDC CURRENT S11 AND...
...USING DC MILLIAMMETER, MEAS BETWEEN J15 AND J16.
522-4825-005
YES
LESS THAN 80 MA
4
NO
LESS THAN 50 MA
60?
NO
4
TURN OFF ALL INPUTS IMMEDIATELY
YES
TOTAL PERFORMANCE TEST
NO
CHK –30 VDC REF CKT FOR SHORTS AND COMPONENT FAILURES. REPAIR AS REQD.
YES
1
SH 1
GO TO PRELIMINARY SERVO LOOP TEST, FIG 706
GO TO POSTTEST, FIG 716

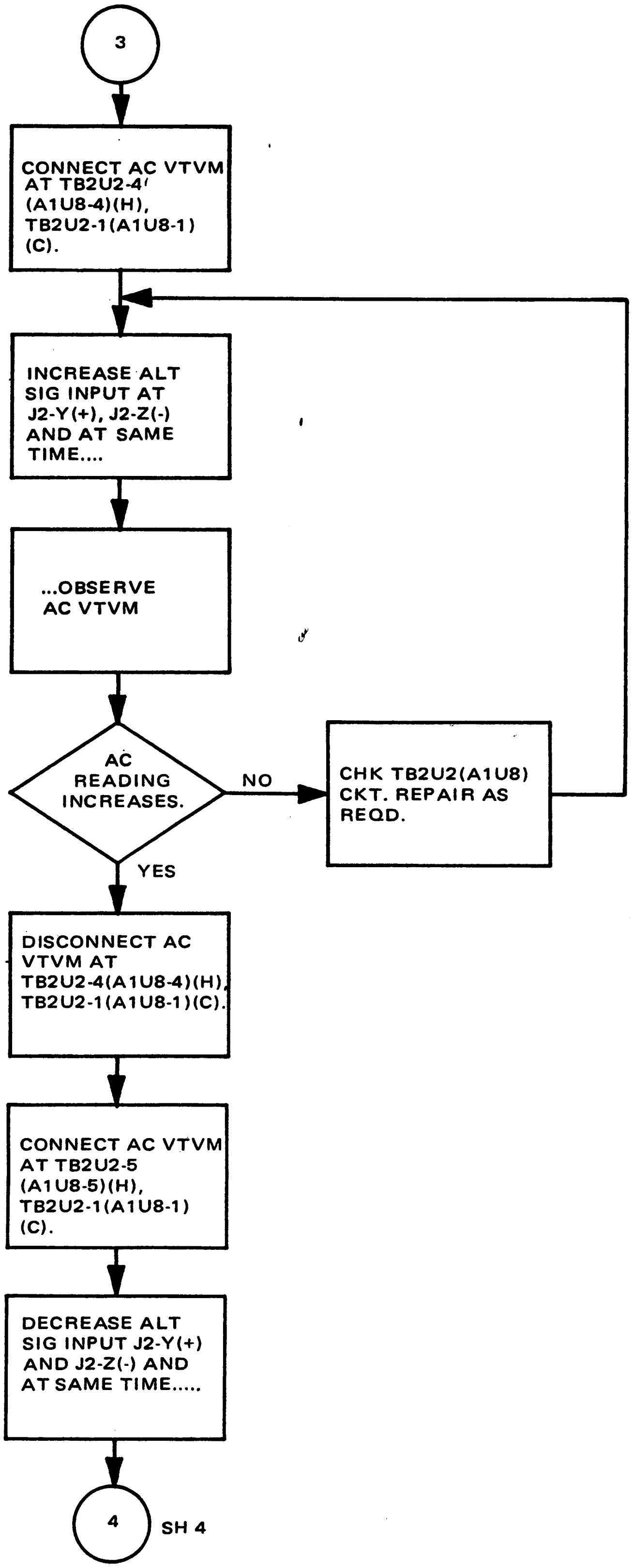
Current Test
Figure 705 (Sheet 2 of 2)


BEGIN
PRELIMINARY SERVO LOOP TEST
TOTAL PERFORMANCE TEST.
NO
PERFORM PRETEST
YES
100300-100304
ADJUST DH CONTROL ON UUT TO CENTER DH INDEX ON 400 FT ALT MARK.
100308-100316
UUT FLAG OUT OF VIEW
NO
PERFORM FLAG OPERATION TEST
YES
1
100320-100332
ADJ ALT SIG INPUT TO +1.400 VDC AND AT SAME TIME....
ALT SIG ADJ R1.
...OBSERVE UUT ALT TAPE MOVEMENT.
100336-100344
MOVES TO 50 FT
ALT TAPE MOVEMENT
OFF SCALE
ROTATE SERVO MOTOR SHAFT FOR ALT INDICATION OF 50 FT.
USE GEAR EXTENDING ABOVE MECHANICAL ASSY TO ROTATE SERVO SHAFT.
NO MOVEMENT
7
SH 7
5
SH 5
2
SH 2

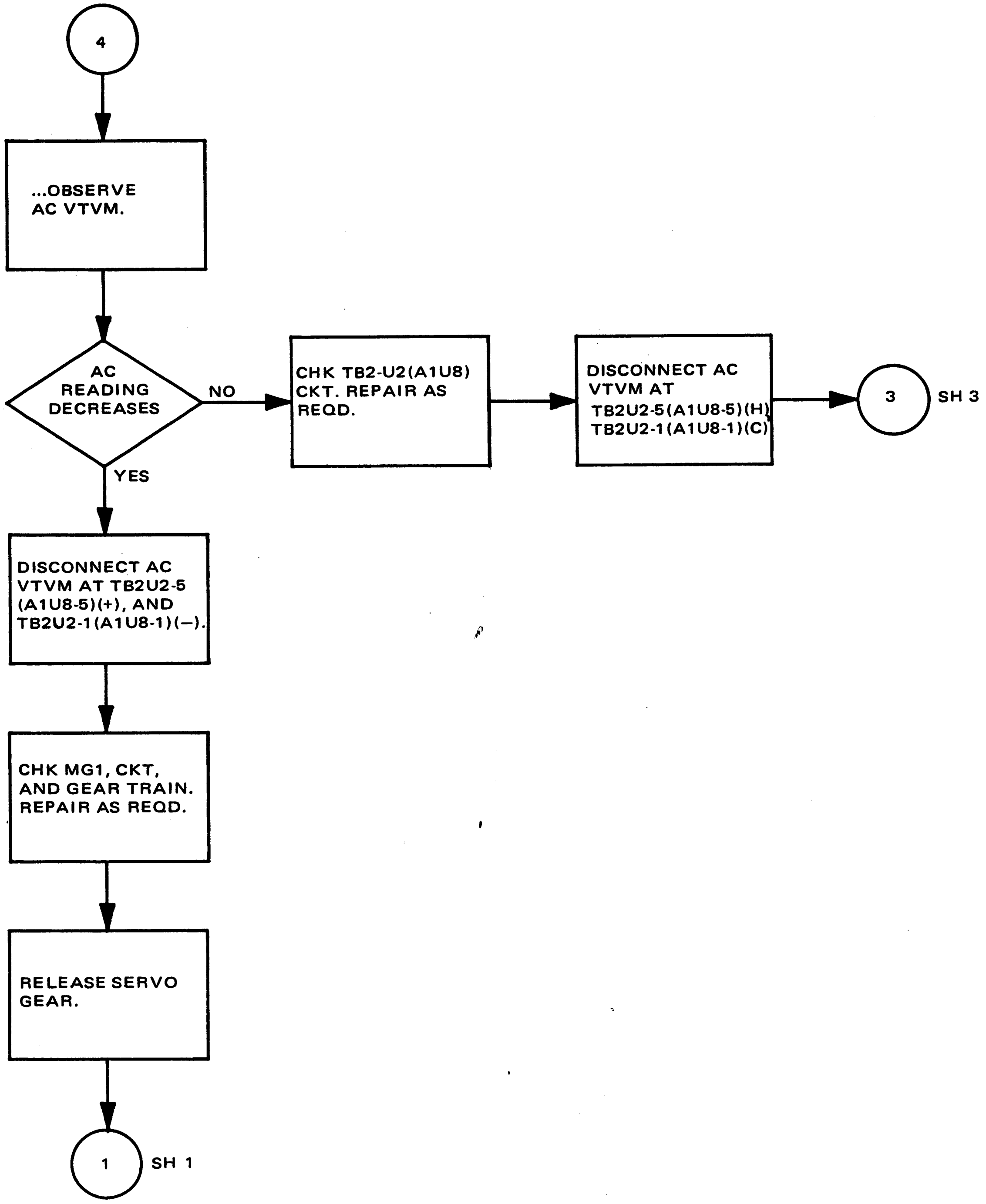
Preliminary Servo-Loop Test
Figure 706 (Sheet 1 of 7)


2
CLAMP GEAR TO HOLD ALT INDICATION AT 50 FT ALT.
MEAS VDC AT R54-D(+), TB1U1-1(A2U18-1) (−).
+1.400 VDC
NO
CHK R54 AND CKT. REPAIR AS REQD.
YES
MEAS VAC AT TB1U3-4(A2U15-4) (H), TB1U1-1 (A2U18-1)(C).
0 VAC
NO
CHK DIFF CHOPPER TB1U3 (A2U15) CKT. REPAIR AS REQD.
YES
MEAS VAC AT TB1U1-4(A2U18-4) (H), AND TB1U1-1(A2U18-1) (C).
0 VAC
NO
CHK AMPL TB1U1 (A2U18)CKT. REPAIR AS REQD.
YES
3
SH 3

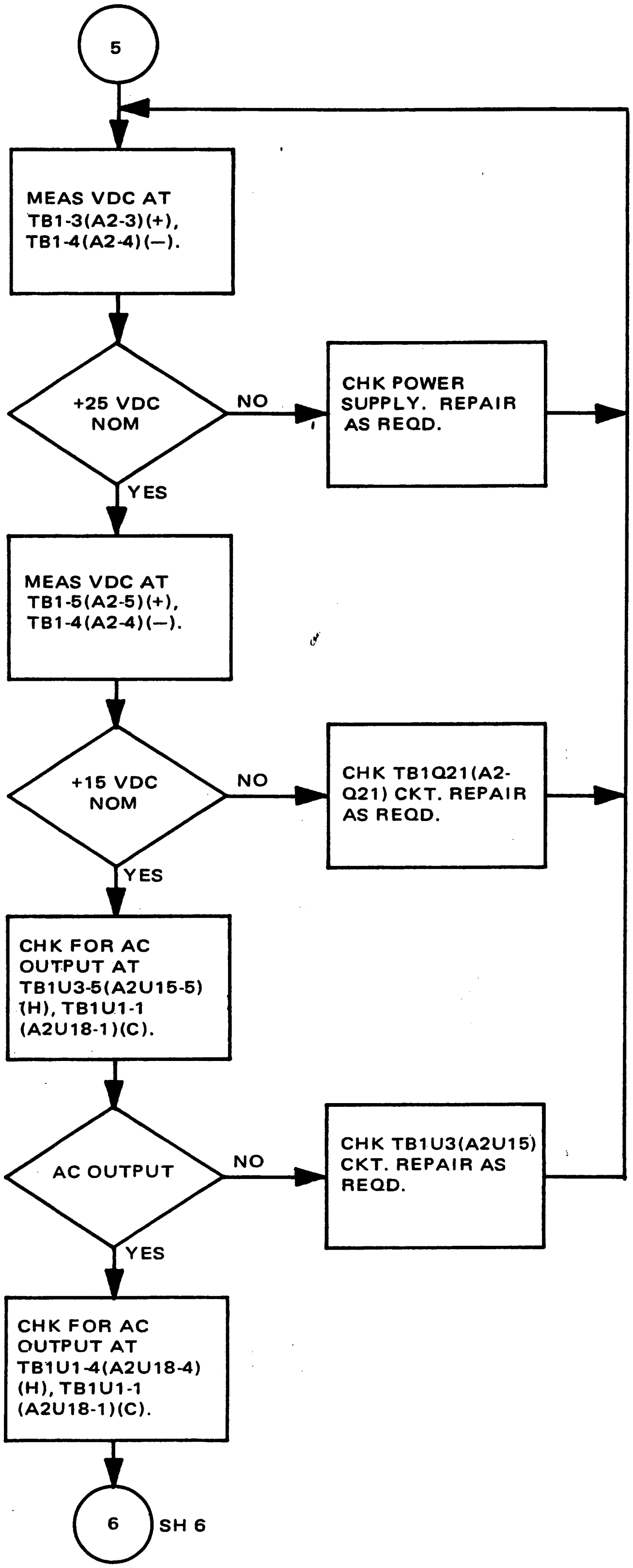
Preliminary Servo-Loop Test
Figure 706 (Sheet 2 of 7)


3
CONNECT AC VTVM AT TB2U2-4 (A1U8-4)(H), TB2U2-1(A1U8-1) (C).
INCREASE ALT SIG INPUT AT J2-Y(+), J2-Z(-) AND AT SAME TIME....
...OBSERVE AC VTVM
AC READING INCREASES.
NO
CHK TB2U2(A1U8) CKT. REPAIR AS REQD.
YES
DISCONNECT AC VTVM AT TB2U2-4(A1U8-4)(H), TB2U2-1(A1U8-1)(C).
CONNECT AC VTVM AT TB2U2-5 (A1U8-5)(H), TB2U2-1(A1U8-1) (C).
DECREASE ALT SIG INPUT J2-Y(+) AND J2-Z(-) AND AT SAME TIME.....
4
SH 4

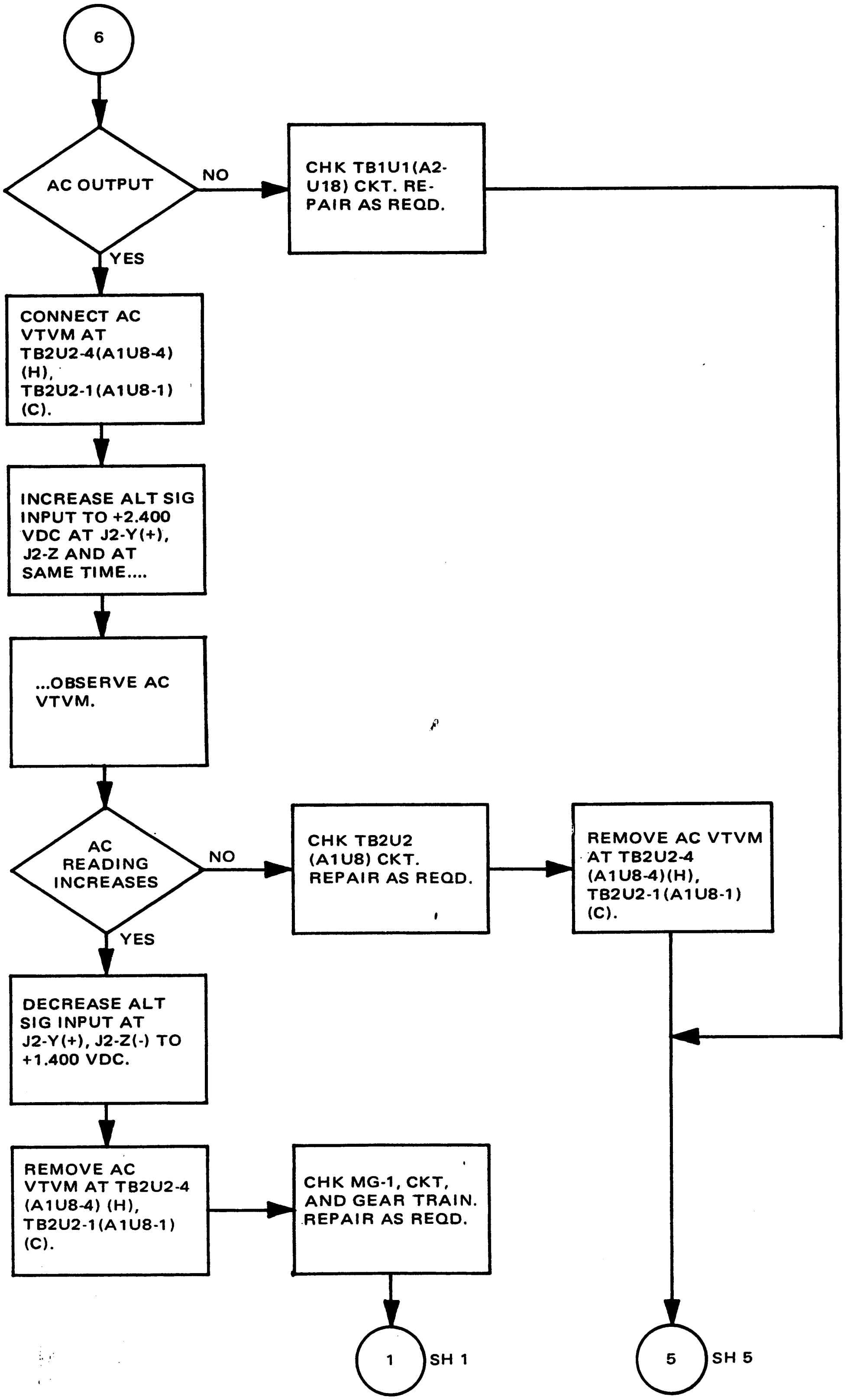
Preliminary Servo-Loop Test
Figure 706 (Sheet 3 of 7)


4
...OBSERVE AC VTVM.
AC READING DECREASES
NO
CHK TB2-U2(A1U8) CKT. REPAIR AS REQD.
DISCONNECT AC VTVM AT TB2U2-5(A1U8-5)(H) TB2U2-1(A1U8-1)(C)
3
SH 3
YES
DISCONNECT AC VTVM AT TB2U2-5 (A1U8-5)(+), AND TB2U2-1(A1U8-1)(−).
CHK MG1, CKT, AND GEAR TRAIN. REPAIR AS REQD.
RELEASE SERVO GEAR.
1
SH 1

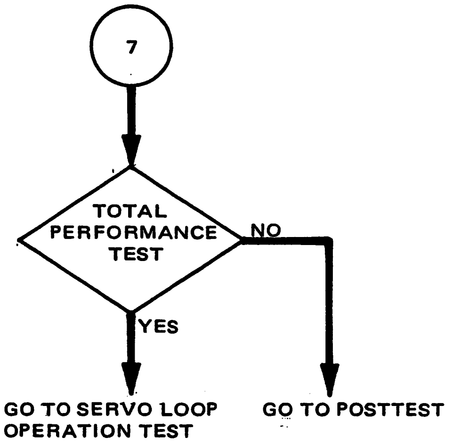
Preliminary Servo-Loop Test
Figure 706 (Sheet 4 of 7)


5
MEAS VDC AT TB1-3(A2-3)(+), TB1-4(A2-4)(—).
+25 VDC NOM
NO
CHK POWER SUPPLY. REPAIR AS REQD.
YES
MEAS VDC AT TB1-5(A2-5)(+), TB1-4(A2-4)(—).
+15 VDC NOM
NO
CHK TB1Q21(A2-Q21) CKT. REPAIR AS REQD.
YES
CHK FOR AC OUTPUT AT TB1U3-5(A2U15-5) (H), TB1U1-1 (A2U18-1)(C).
AC OUTPUT
NO
CHK TB1U3(A2U15) CKT. REPAIR AS REQD.
YES
CHK FOR AC OUTPUT AT TB1U1-4(A2U18-4) (H), TB1U1-1 (A2U18-1)(C).
6
SH 6

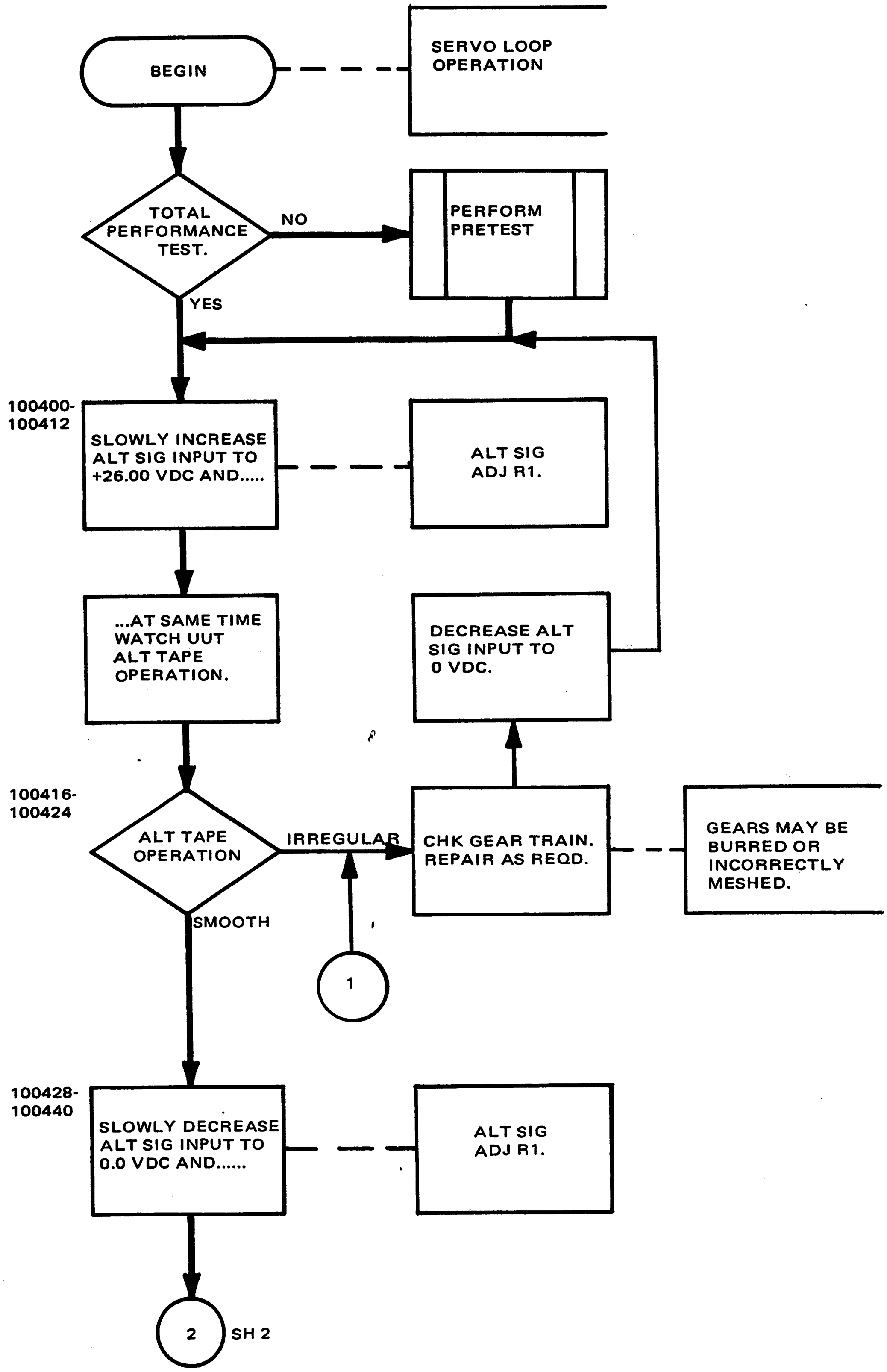
Preliminary Servo-Loop Test
Figure 706 (Sheet 5 of 7)


6
AC OUTPUT
NO
CHK TB1U1(A2-U18) CKT. REPAIR AS REQD.
YES
CONNECT AC VTVM AT TB2U2-4(A1U8-4) (H), TB2U2-1(A1U8-1) (C).
INCREASE ALT SIG INPUT TO +2.400 VDC AT J2-Y(+), J2-Z AND AT SAME TIME....
...OBSERVE AC VTVM.
AC READING INCREASES
NO
CHK TB2U2 (A1U8) CKT. REPAIR AS REQD.
REMOVE AC VTVM AT TB2U2-4 (A1U8-4)(H), TB2U2-1(A1U8-1) (C).
YES
DECREASE ALT SIG INPUT AT J2-Y(+), J2-Z(-) TO +1.400 VDC.
REMOVE AC VTVM AT TB2U2-4 (A1U8-4) (H), TB2U2-1(A1U8-1) (C).
CHK MG-1, CKT, AND GEAR TRAIN. REPAIR AS REQD.
1
SH 1
5
SH 5

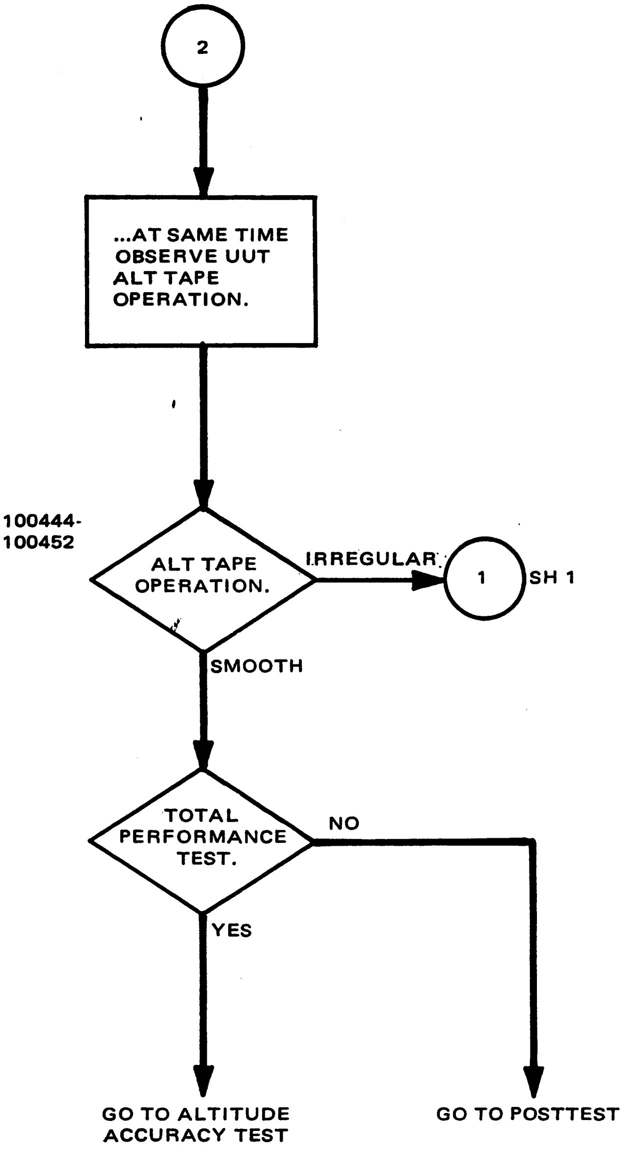
Preliminary Servo-Loop Test
Figure 706 (Sheet 6 of 7)



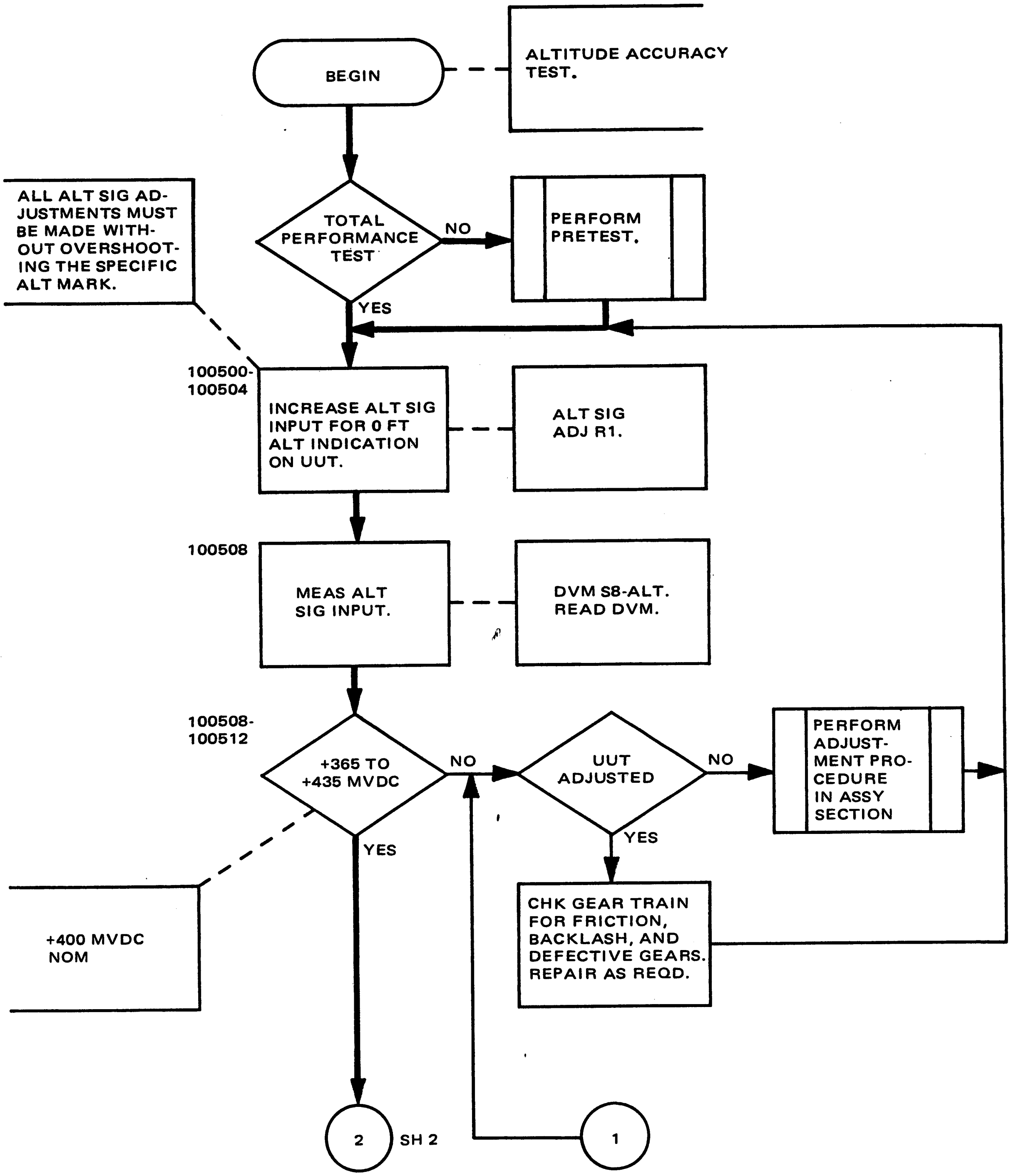
Preliminary Servo-Loop Test
Figure 706 (Sheet 7 of 7)


BEGIN
SERVO LOOP OPERATION
TOTAL PERFORMANCE TEST.
NO
PERFORM PRETEST
YES
100400-100412
SLOWLY INCREASE ALT SIG INPUT TO +26.00 VDC AND.....
ALT SIG ADJ R1.
...AT SAME TIME WATCH UUT ALT TAPE OPERATION.
DECREASE ALT SIG INPUT TO 0 VDC.
100416-100424
ALT TAPE OPERATION
IRREGULAR
CHK GEAR TRAIN. REPAIR AS REQD.
GEARS MAY BE BURRED OR INCORRECTLY MESHED.
SMOOTH
1
100428-100440
SLOWLY DECREASE ALT SIG INPUT TO 0.0 VDC AND......
ALT SIG ADJ R1.
2
SH 2

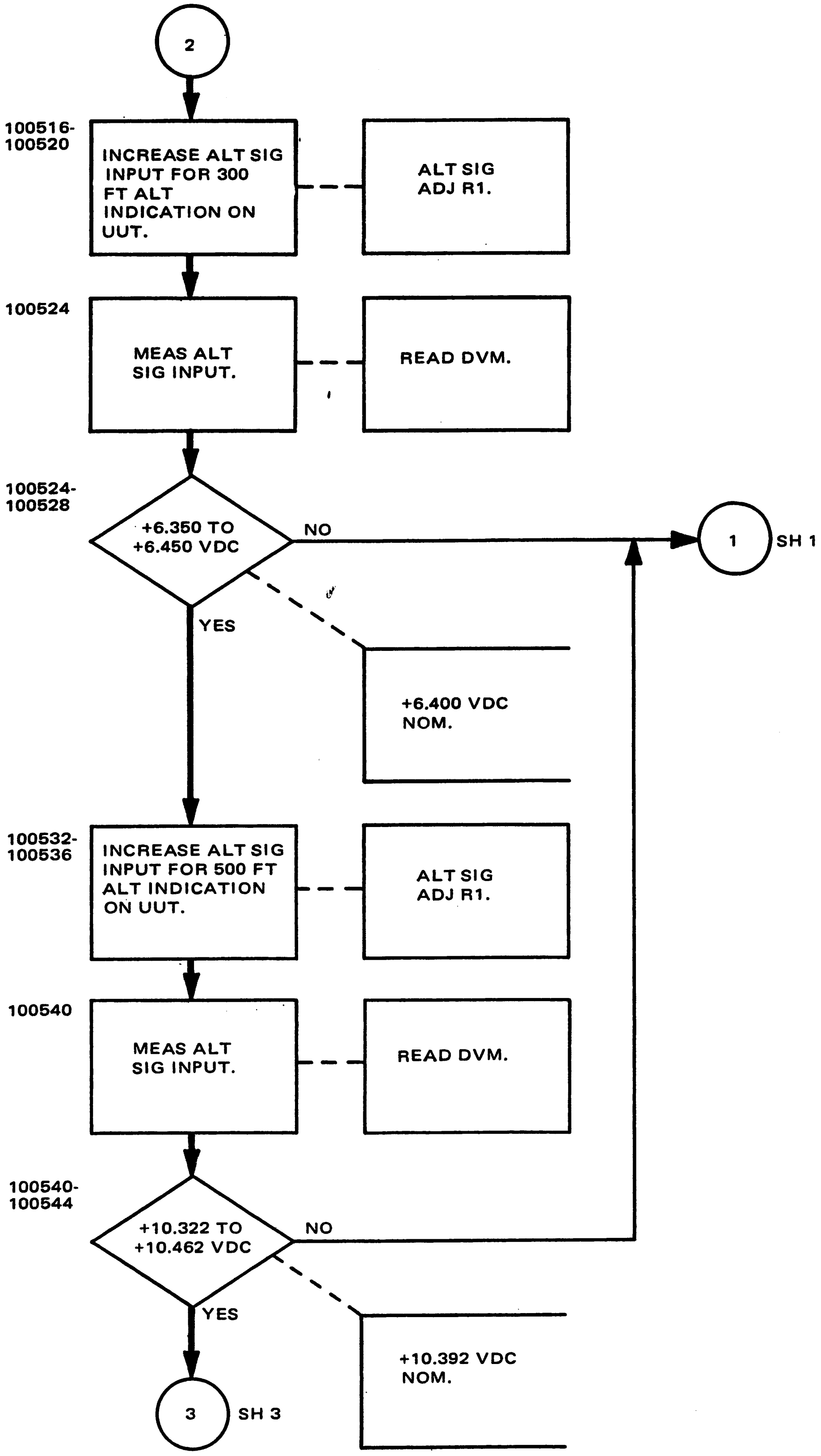
Servo-Loop Operation Test
Figure 707 (Sheet 1 of 2)



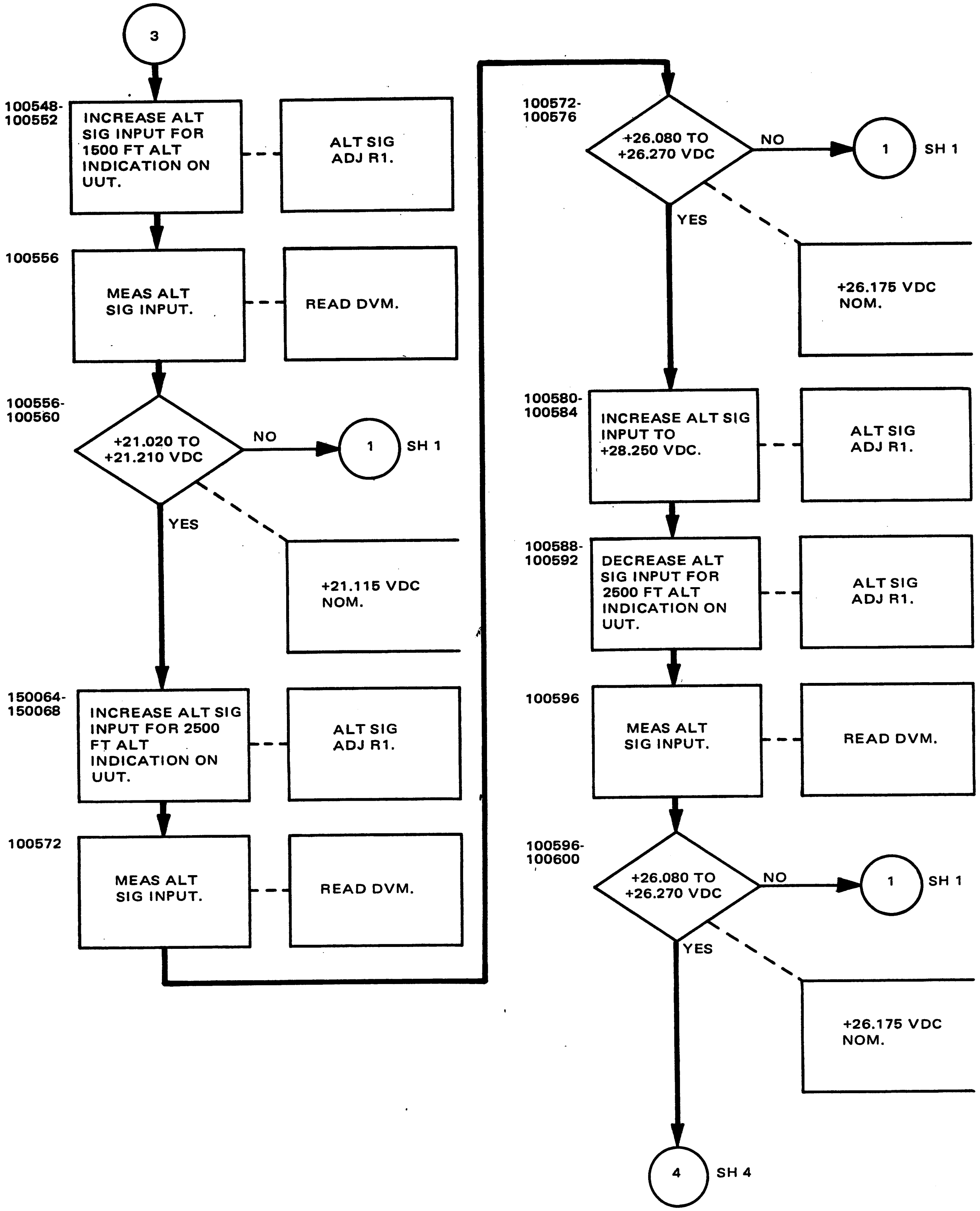
Servo-Loop Operation Test
Figure 707 (Sheet 2 of 2)


BEGIN
ALTITUDE ACCURACY TEST.
ALL ALT SIG ADJUSTMENTS MUST BE MADE WITHOUT OVERSHOOTING THE SPECIFIC ALT MARK.
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST.
YES
100500-100504
INCREASE ALT SIG INPUT FOR 0 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
100508
MEAS ALT SIG INPUT.
DVM S8-ALT. READ DVM.
100508-100512
+365 TO +435 MVDC
NO
UUT ADJUSTED
NO
PERFORM ADJUSTMENT PROCEDURE IN ASSY SECTION
YES
CHK GEAR TRAIN FOR FRICTION, BACKLASH, AND DEFECTIVE GEARS. REPAIR AS REQD.
YES
+400 MVDC NOM
2
SH 2
1

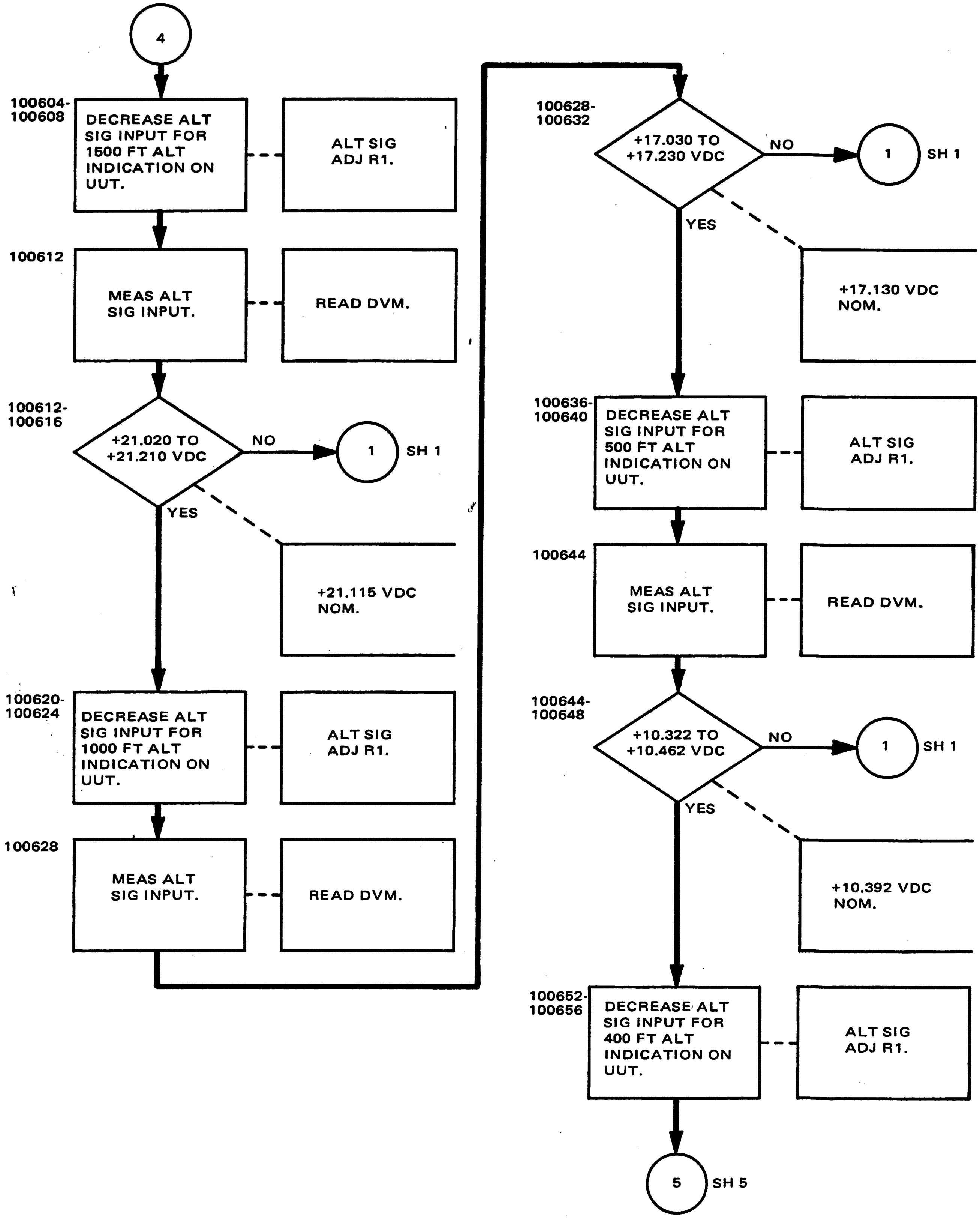
Altitude Accuracy Test
Figure 708 (Sheet 1 of 6)



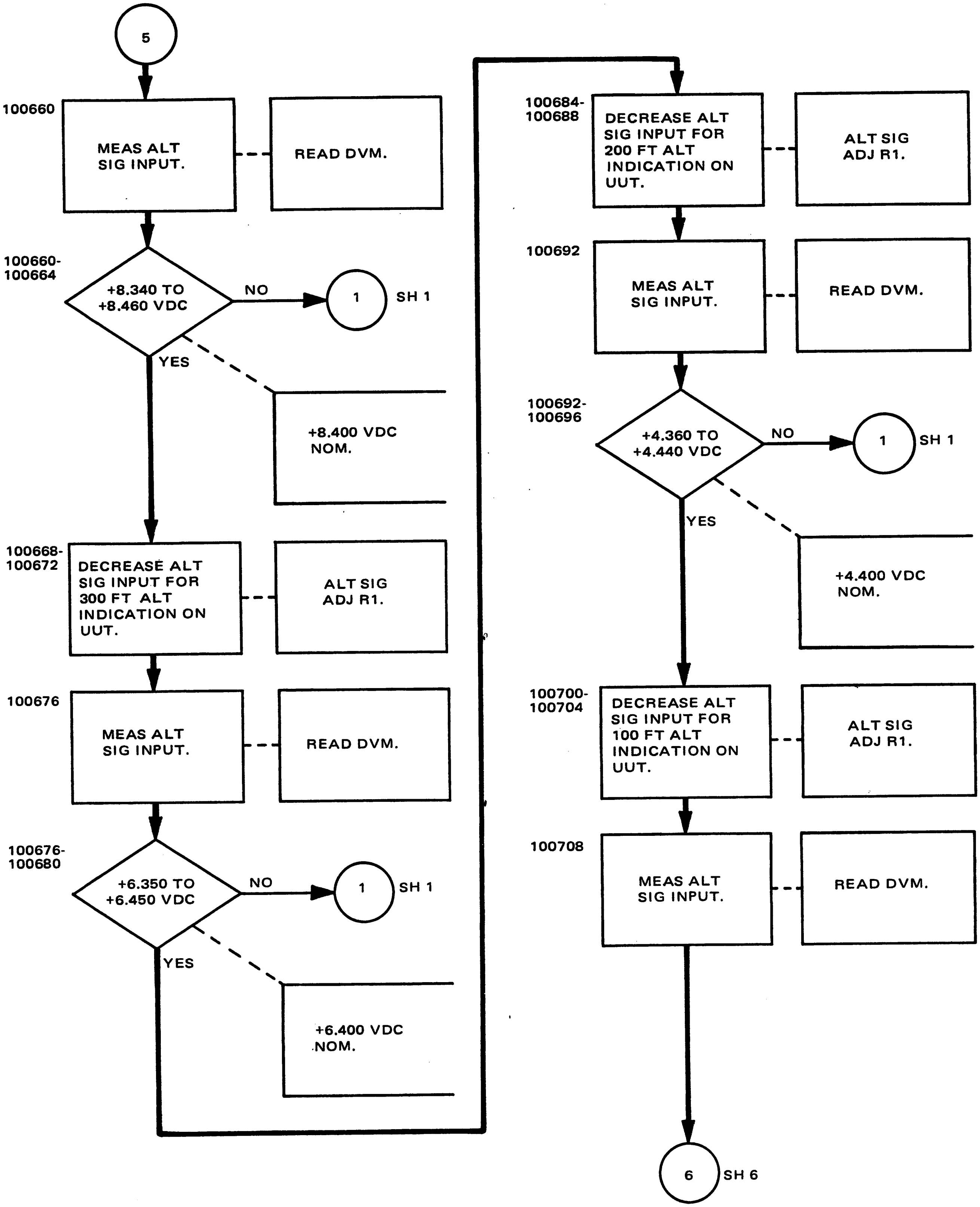
Altitude Accuracy Test
Figure 708 (Sheet 2 of 6)



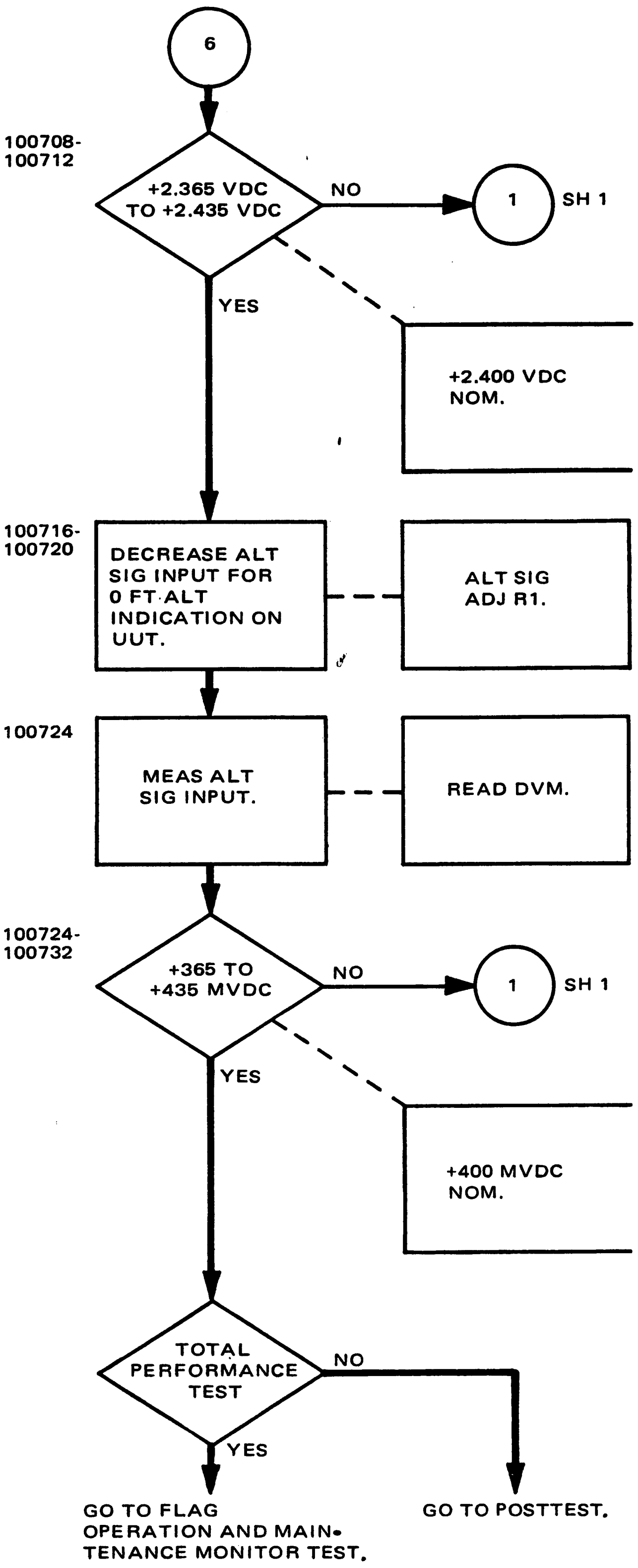
Altitude Accuracy Test
Figure 708 (Sheet 3 of 6)



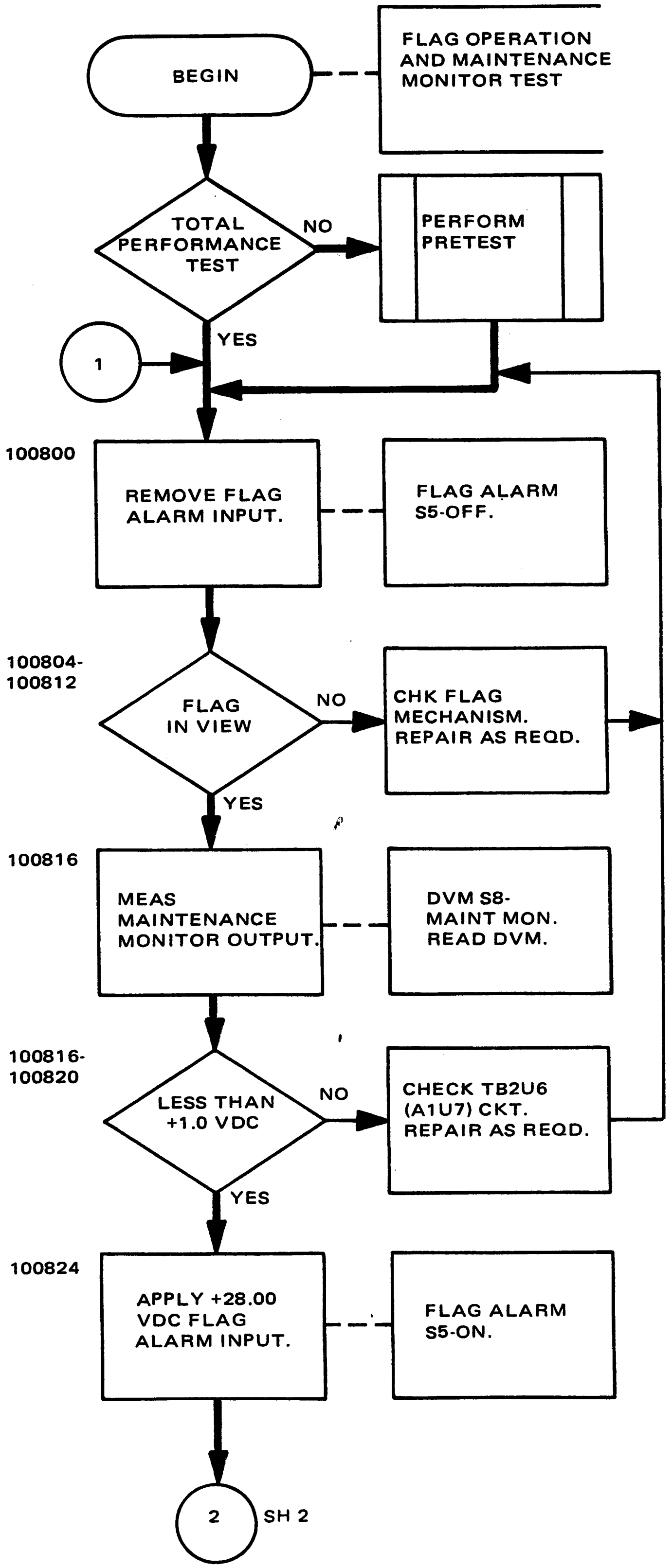
Altitude Accuracy Test
Figure 708 (Sheet 4 of 6)



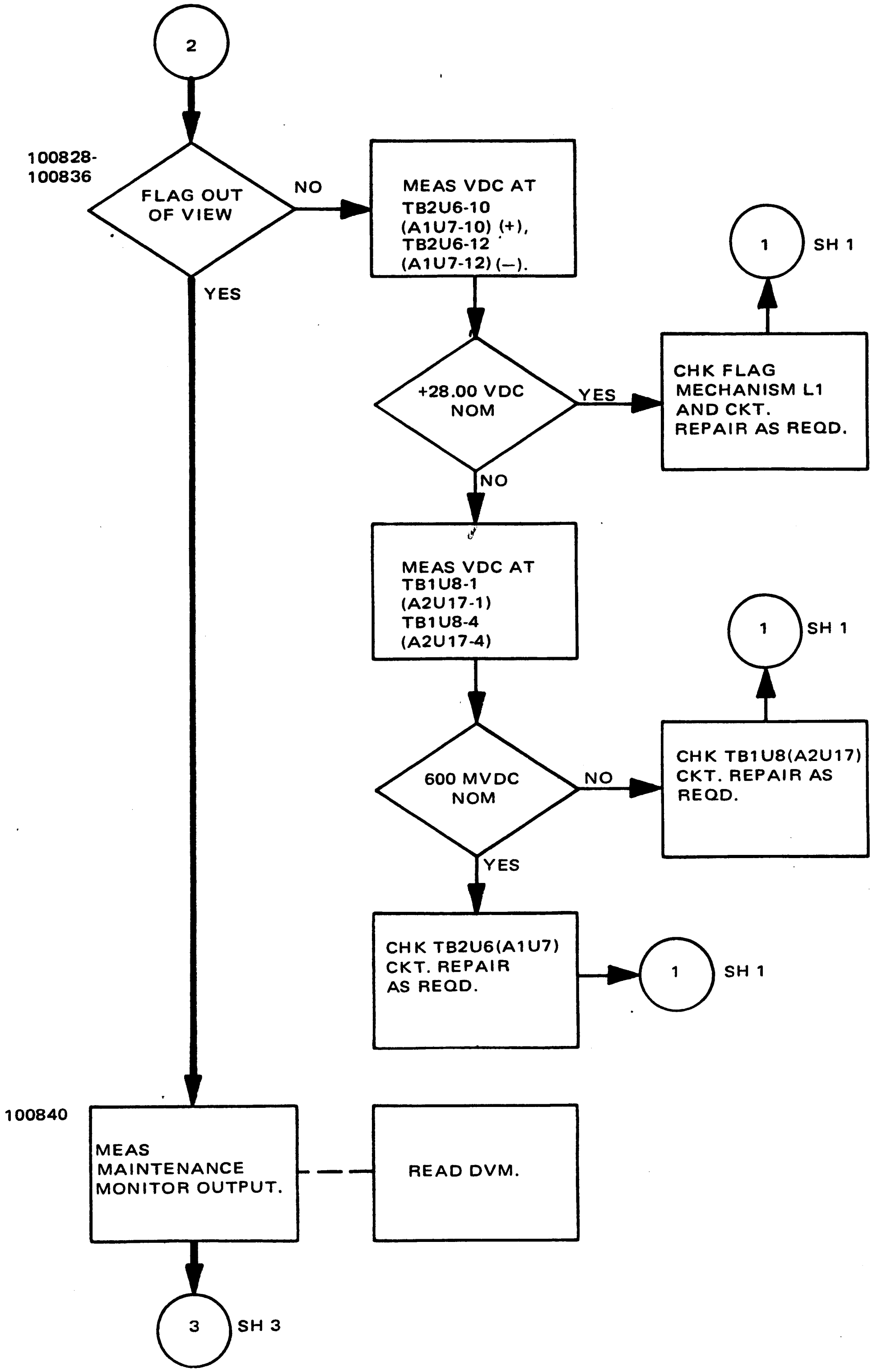
Altitude Accuracy Test
Figure 708 (Sheet 5 of 6)



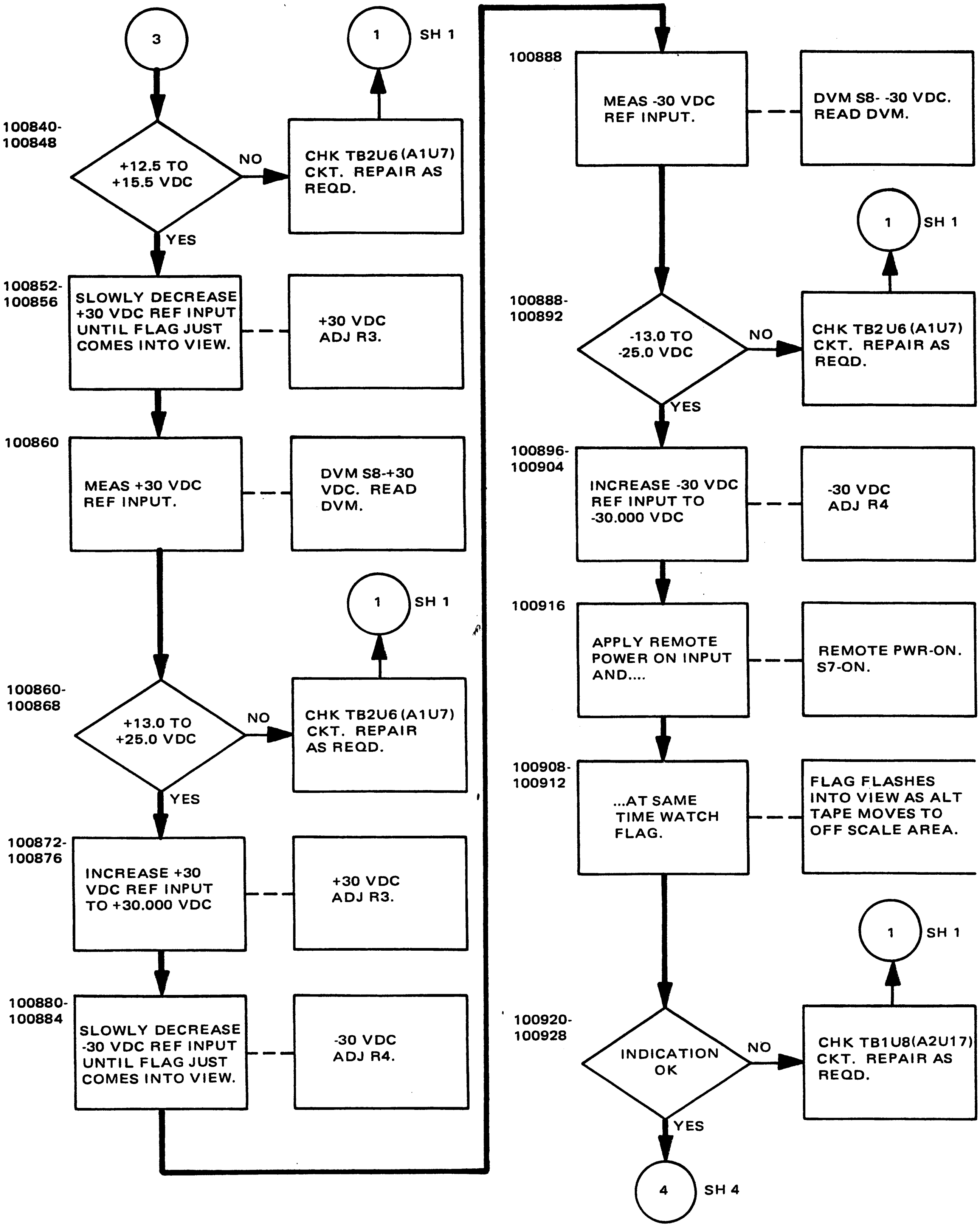
Altitude Accuracy Test
Figure 708 (Sheet 6 of 6)


BEGIN
FLAG OPERATION AND MAINTENANCE MONITOR TEST
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST
YES
1
100800
REMOVE FLAG ALARM INPUT.
FLAG ALARM S5-OFF.
100804-
100812
FLAG IN VIEW
NO
CHK FLAG MECHANISM. REPAIR AS REQD.
YES
100816
MEAS MAINTENANCE MONITOR OUTPUT.
DVM S8- MAINT MON. READ DVM.
100816-
100820
LESS THAN +1.0 VDC
NO
CHECK TB2U6 (A1U7) CKT. REPAIR AS REQD.
YES
100824
APPLY +28.00 VDC FLAG ALARM INPUT.
FLAG ALARM S5-ON.
2
SH 2

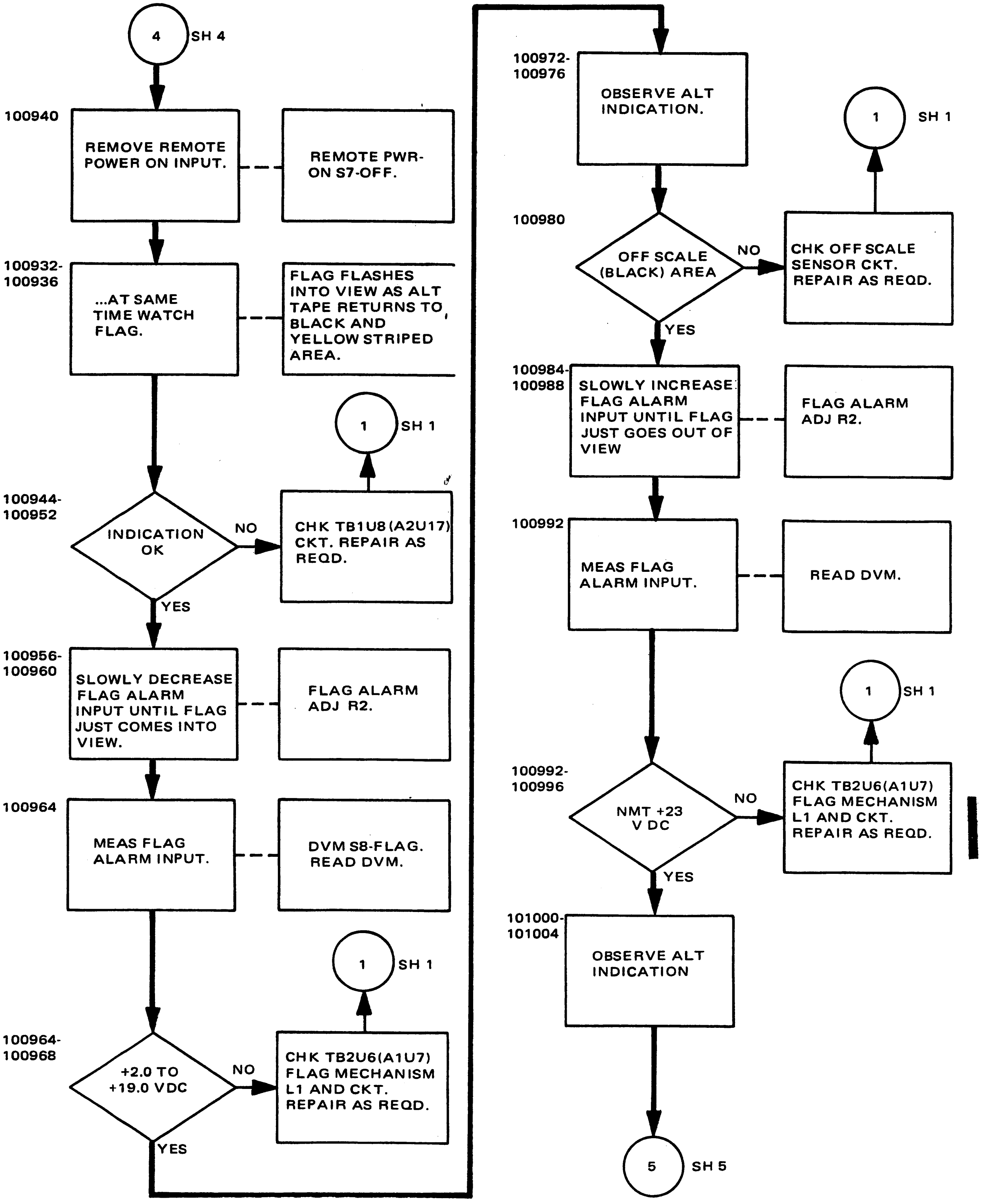
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 1 of 6)


2
100828-
100836
FLAG OUT OF VIEW
NO
YES
MEAS VDC AT TB2U6-10 (A1U7-10) (+), TB2U6-12 (A1U7-12) (—).
1
SH 1
+28.00 VDC NOM
YES
NO
CHK FLAG MECHANISM L1 AND CKT. REPAIR AS REQD.
MEAS VDC AT TB1U8-1 (A2U17-1) TB1U8-4 (A2U17-4)
1
SH 1
600 MVDC NOM
NO
YES
CHK TB1U8(A2U17) CKT. REPAIR AS REQD.
CHK TB2U6(A1U7) CKT. REPAIR AS REQD.
1
SH 1
100840
MEAS MAINTENANCE MONITOR OUTPUT.
READ DVM.
3
SH 3

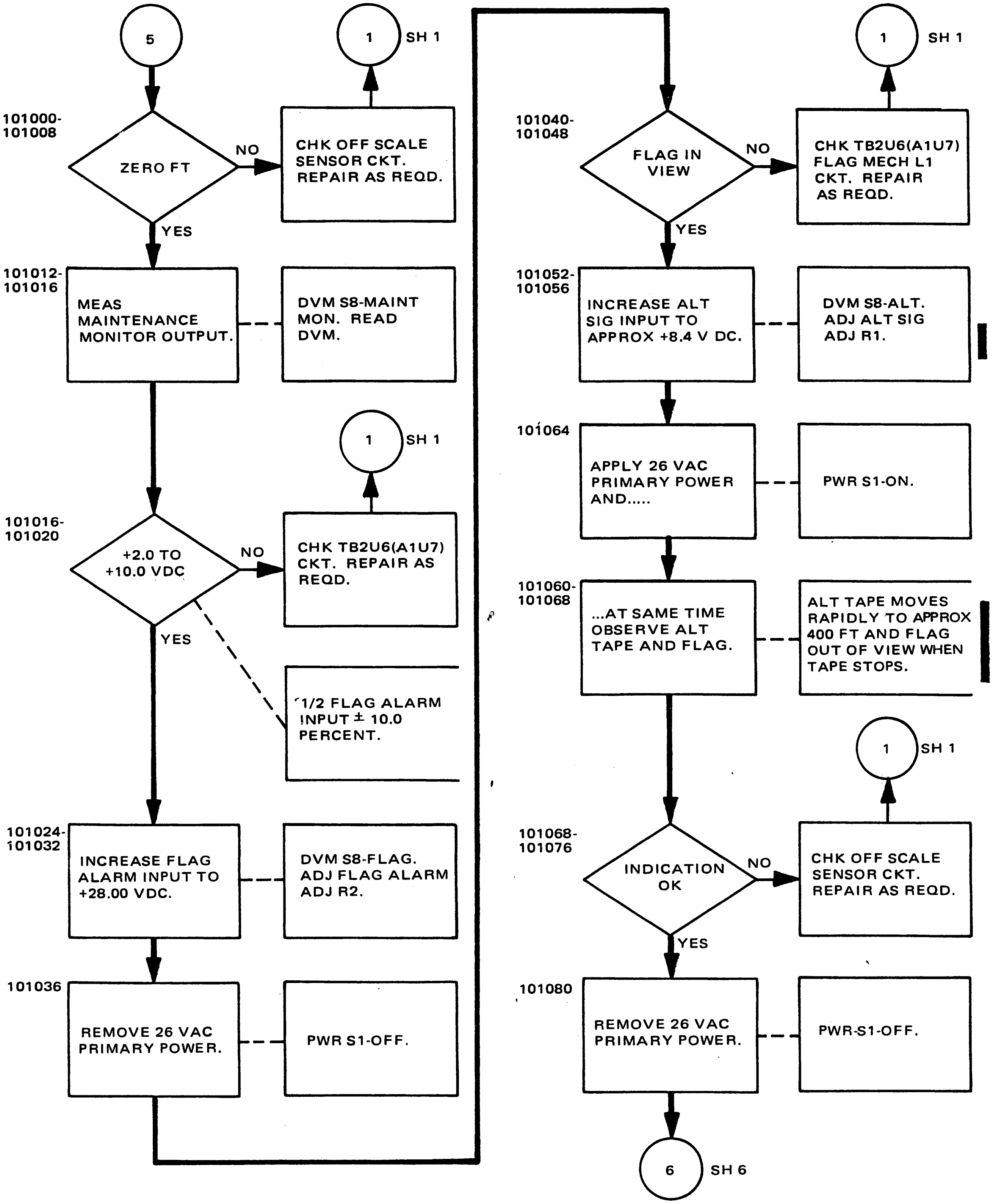
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 2 of 6)


3
100840-
100848
+12.5 TO
+15.5 VDC
NO
CHK TB2U6 (A1U7) CKT. REPAIR AS REQD.
1
SH 1
YES
100852-
100856
SLOWLY DECREASE +30 VDC REF INPUT UNTIL FLAG JUST COMES INTO VIEW.
+30 VDC ADJ R3.
100860
MEAS +30 VDC REF INPUT.
DVM S8-+30 VDC. READ DVM.
100860-
100868
+13.0 TO
+25.0 VDC
NO
CHK TB2U6 (A1U7) CKT. REPAIR AS REQD.
1
SH 1
YES
100872-
100876
INCREASE +30 VDC REF INPUT TO +30.000 VDC
+30 VDC ADJ R3.
100880-
100884
SLOWLY DECREASE -30 VDC REF INPUT UNTIL FLAG JUST COMES INTO VIEW.
-30 VDC ADJ R4.
100888
MEAS -30 VDC REF INPUT.
DVM S8- -30 VDC. READ DVM.
100888-
100892
-13.0 TO
-25.0 VDC
NO
CHK TB2 U6 (A1U7) CKT. REPAIR AS REQD.
1
SH 1
YES
100896-
100904
INCREASE -30 VDC REF INPUT TO -30.000 VDC
-30 VDC ADJ R4
100916
APPLY REMOTE POWER ON INPUT AND....
REMOTE PWR-ON. S7-ON.
100908-
100912
...AT SAME TIME WATCH FLAG.
FLAG FLASHES INTO VIEW AS ALT TAPE MOVES TO OFF SCALE AREA.
100920-
100928
INDICATION OK
NO
CHK TB1U8(A2U17) CKT. REPAIR AS REQD.
1
SH 1
YES
4
SH 4

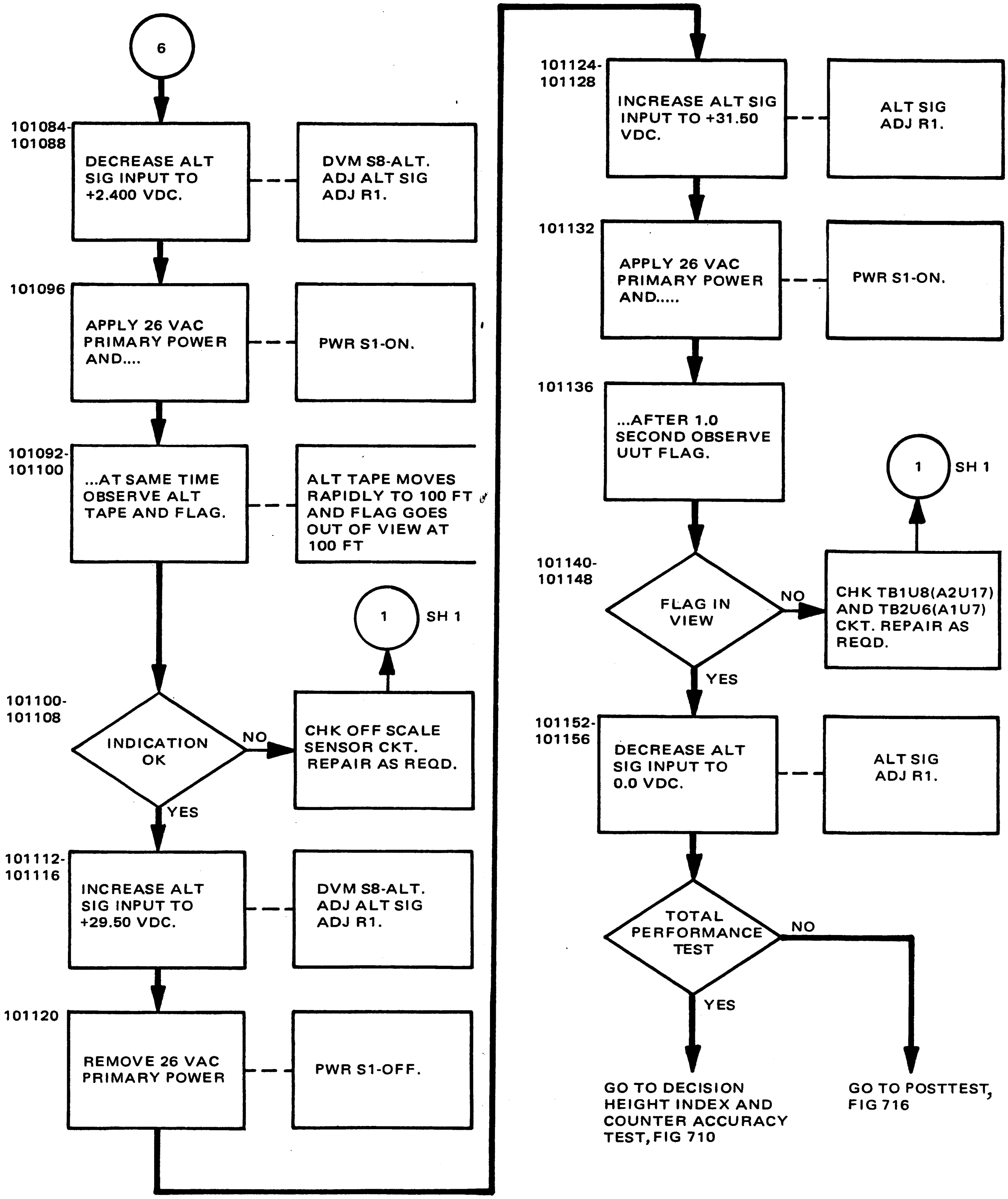
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 3)


4
SH 4
100940
REMOVE REMOTE POWER ON INPUT.
REMOTE PWR-ON S7-OFF.
100932-100936
...AT SAME TIME WATCH FLAG.
FLAG FLASHES INTO VIEW AS ALT TAPE RETURNS TO BLACK AND YELLOW STRIPED AREA.
1
SH 1
100944-100952
INDICATION OK
NO
CHK TB1U8(A2U17) CKT. REPAIR AS REQD.
YES
100956-100960
SLOWLY DECREASE FLAG ALARM INPUT UNTIL FLAG JUST COMES INTO VIEW.
FLAG ALARM ADJ R2.
100964
MEAS FLAG ALARM INPUT.
DVM S8-FLAG. READ DVM.
1
SH 1
100964-100968
+2.0 TO +19.0 VDC
NO
CHK TB2U6(A1U7) FLAG MECHANISM L1 AND CKT. REPAIR AS REQD.
YES
100972-100976
OBSERVE ALT INDICATION.
1
SH 1
100980
OFF SCALE (BLACK) AREA
NO
CHK OFF SCALE SENSOR CKT. REPAIR AS REQD.
YES
100984-100988
SLOWLY INCREASE FLAG ALARM INPUT UNTIL FLAG JUST GOES OUT OF VIEW
FLAG ALARM ADJ R2.
100992
MEAS FLAG ALARM INPUT.
READ DVM.
1
SH 1
100992-100996
NMT +23 V DC
NO
CHK TB2U6(A1U7) FLAG MECHANISM L1 AND CKT. REPAIR AS REQD.
YES
101000-101004
OBSERVE ALT INDICATION
5
SH 5

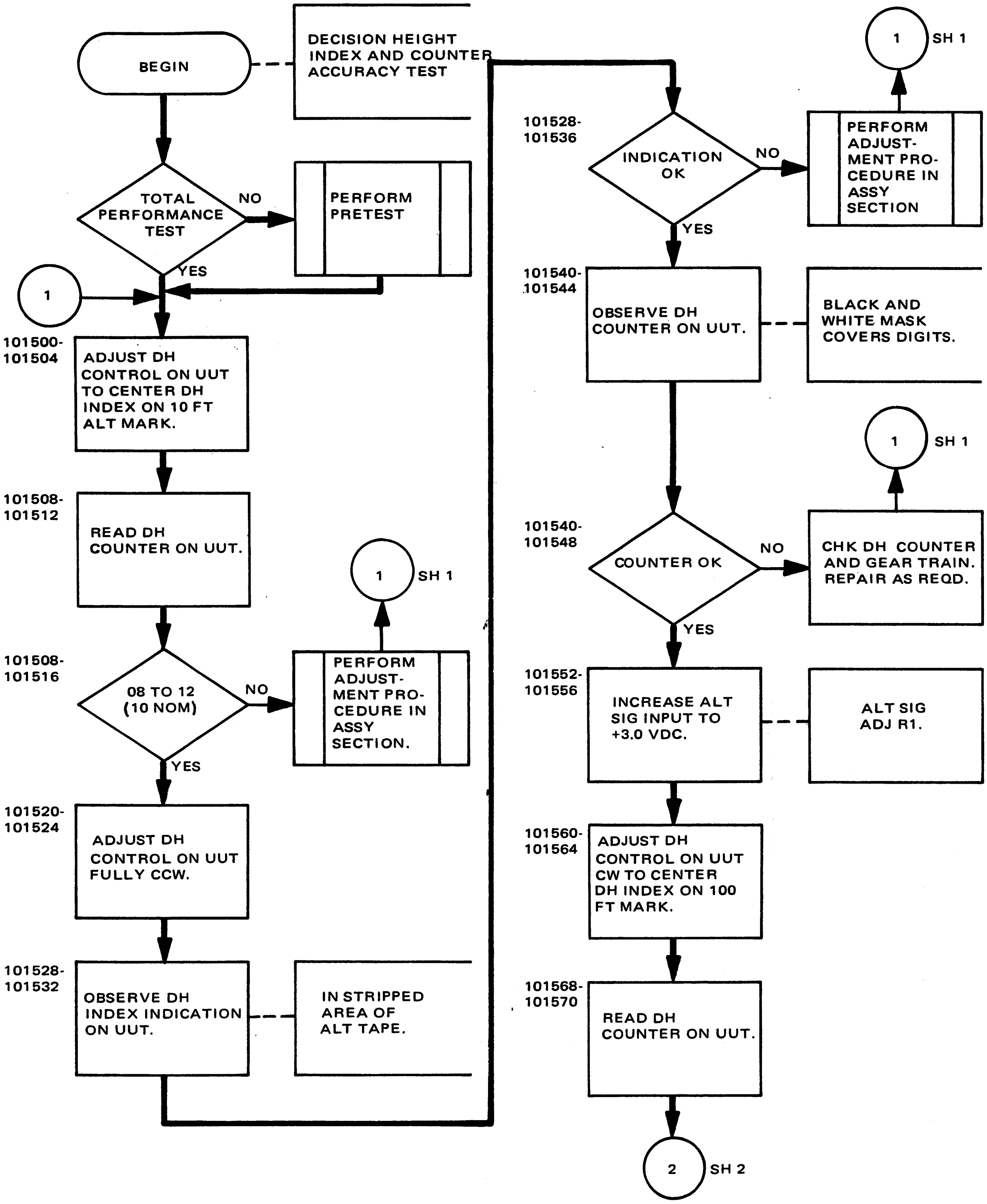
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 4)


5
1 SH 1
101000-
101008
ZERO FT
NO
CHK OFF SCALE SENSOR CKT. REPAIR AS REQD.
YES
101012-
101016
MEAS MAINTENANCE MONITOR OUTPUT.
DVM S8-MAINT MON. READ DVM.
1 SH 1
101016-
101020
+2.0 TO +10.0 VDC
NO
CHK TB2U6(A1U7) CKT. REPAIR AS REQD.
YES
1/2 FLAG ALARM INPUT ± 10.0 PERCENT.
101024-
101032
INCREASE FLAG ALARM INPUT TO +28.00 VDC.
DVM S8-FLAG. ADJ FLAG ALARM ADJ R2.
101036
REMOVE 26 VAC PRIMARY POWER.
PWR S1-OFF.
1 SH 1
101040-
101048
FLAG IN VIEW
NO
CHK TB2U6(A1U7) FLAG MECH L1 CKT. REPAIR AS REQD.
YES
101052-
101056
INCREASE ALT SIG INPUT TO APPROX +8.4 V DC.
DVM S8-ALT. ADJ ALT SIG ADJ R1.
101064
APPLY 26 VAC PRIMARY POWER AND.....
PWR S1-ON.
101060-
101068
...AT SAME TIME OBSERVE ALT TAPE AND FLAG.
ALT TAPE MOVES RAPIDLY TO APPROX 400 FT AND FLAG OUT OF VIEW WHEN TAPE STOPS.
1 SH 1
101068-
101076
INDICATION OK
NO
CHK OFF SCALE SENSOR CKT. REPAIR AS REQD.
YES
101080
REMOVE 26 VAC PRIMARY POWER.
PWR-S1-OFF.
6 SH 6

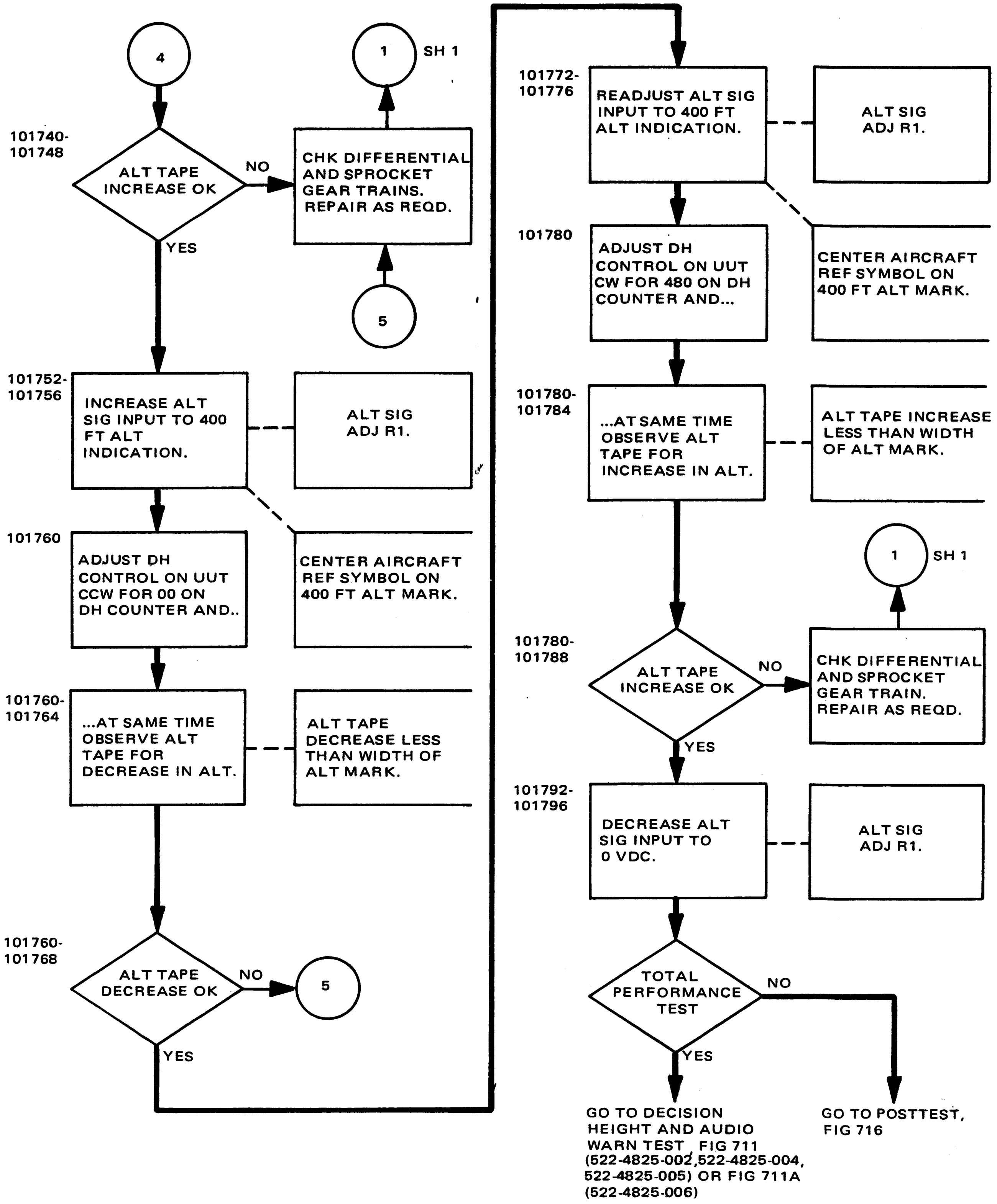
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 5)


6
101084-
101088
DECREASE ALT SIG INPUT TO +2.400 VDC.
DVM S8-ALT. ADJ ALT SIG ADJ R1.
101096
APPLY 26 VAC PRIMARY POWER AND....
PWR S1-ON.
101092-
101100
...AT SAME TIME OBSERVE ALT TAPE AND FLAG.
ALT TAPE MOVES RAPIDLY TO 100 FT AND FLAG GOES OUT OF VIEW AT 100 FT
101100-
101108
INDICATION OK
NO
CHK OFF SCALE SENSOR CKT. REPAIR AS REQD.
1
SH 1
YES
101112-
101116
INCREASE ALT SIG INPUT TO +29.50 VDC.
DVM S8-ALT. ADJ ALT SIG ADJ R1.
101120
REMOVE 26 VAC PRIMARY POWER
PWR S1-OFF.
101124-
101128
INCREASE ALT SIG INPUT TO +31.50 VDC.
ALT SIG ADJ R1.
101132
APPLY 26 VAC PRIMARY POWER AND.....
PWR S1-ON.
101136
...AFTER 1.0 SECOND OBSERVE UUT FLAG.
1
SH 1
101140-
101148
FLAG IN VIEW
NO
CHK TB1U8(A2U17) AND TB2U6(A1U7) CKT. REPAIR AS REQD.
YES
101152-
101156
DECREASE ALT SIG INPUT TO 0.0 VDC.
ALT SIG ADJ R1.
TOTAL PERFORMANCE TEST
NO
YES
GO TO DECISION HEIGHT INDEX AND COUNTER ACCURACY TEST, FIG 710
GO TO POSTTEST, FIG 716

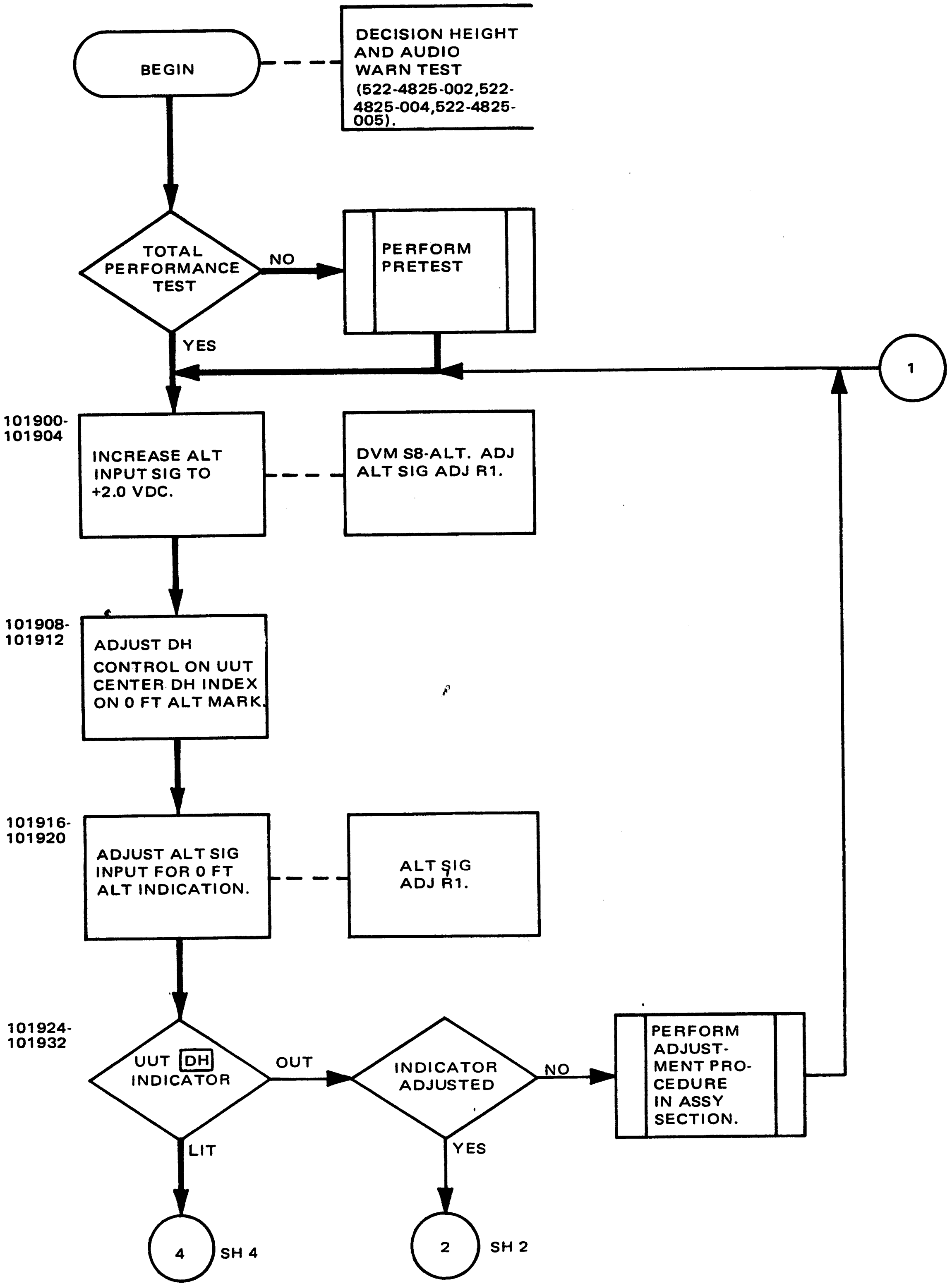
Flag Operation and Maintenance Monitor Test
Figure 709 (Sheet 6 of 6)


BEGIN
DECISION HEIGHT INDEX AND COUNTER ACCURACY TEST
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST
YES
1
101500-101504
ADJUST DH CONTROL ON UUT TO CENTER DH INDEX ON 10 FT ALT MARK.
101508-101512
READ DH COUNTER ON UUT.
1
SH 1
101508-101516
08 TO 12 (10 NOM)
NO
PERFORM ADJUST-MENT PRO-CEDURE IN ASSY SECTION.
YES
101520-101524
ADJUST DH CONTROL ON UUT FULLY CCW.
101528-101532
OBSERVE DH INDEX INDICATION ON UUT.
IN STRIPPED AREA OF ALT TAPE.
1
SH 1
101528-101536
INDICATION OK
NO
PERFORM ADJUST-MENT PRO-CEDURE IN ASSY SECTION
YES
101540-101544
OBSERVE DH COUNTER ON UUT.
BLACK AND WHITE MASK COVERS DIGITS.
1
SH 1
101540-101548
COUNTER OK
NO
CHK DH COUNTER AND GEAR TRAIN. REPAIR AS REQD.
YES
101552-101556
INCREASE ALT SIG INPUT TO +3.0 VDC.
ALT SIG ADJ R1.
101560-101564
ADJUST DH CONTROL ON UUT CW TO CENTER DH INDEX ON 100 FT MARK.
101568-101570
READ DH COUNTER ON UUT.
2
SH 2

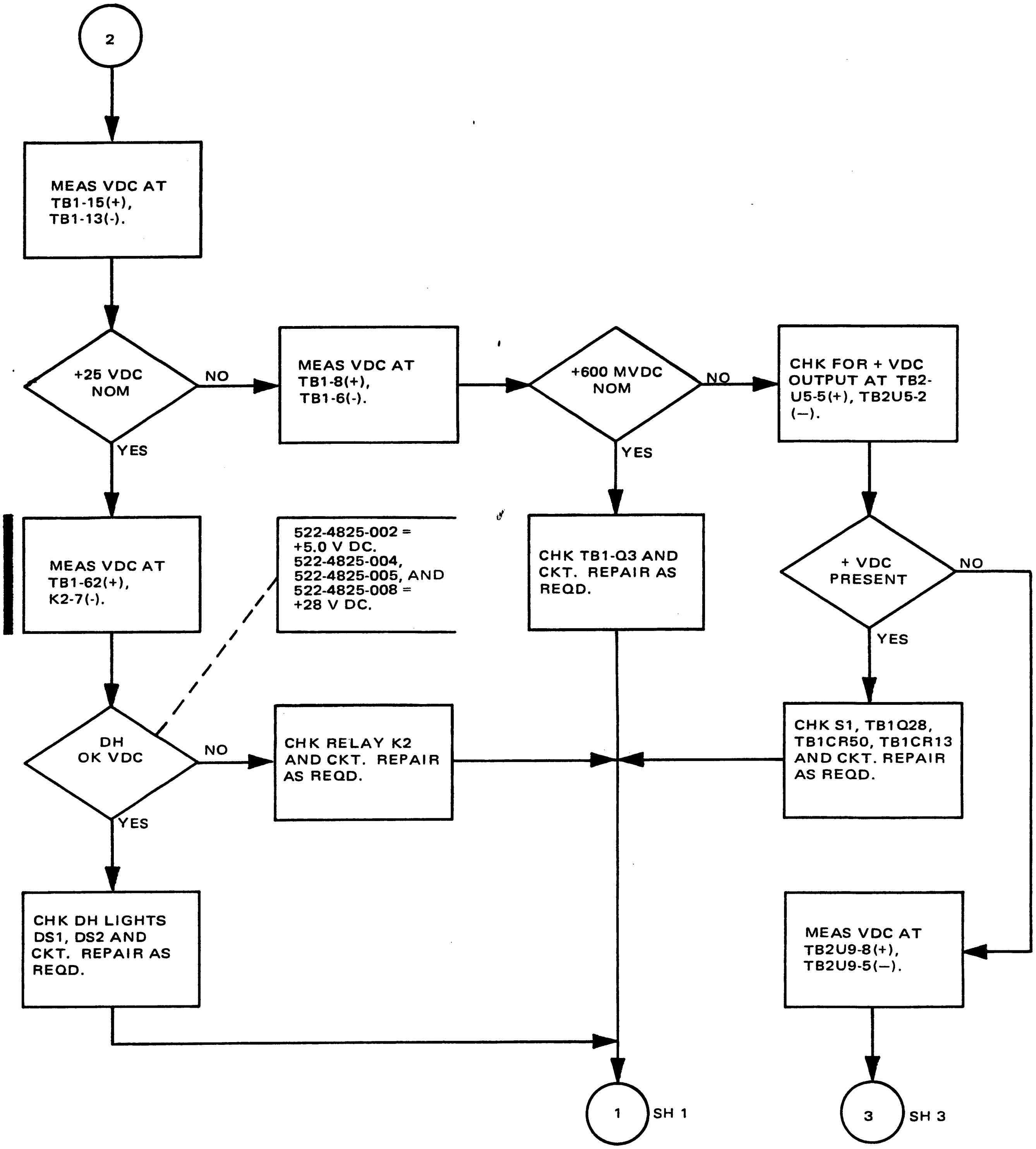
Decision Height Index and Counter Accuracy Test
Figure 710 (Sheet 1 of 4)


4
101740-
101748
ALT TAPE INCREASE OK
NO
CHK DIFFERENTIAL AND SPROCKET GEAR TRAINS. REPAIR AS REQD.
1
SH 1
5
YES
101752-
101756
INCREASE ALT SIG INPUT TO 400 FT ALT INDICATION.
ALT SIG ADJ R1.
101760
ADJUST DH CONTROL ON UUT CCW FOR 00 ON DH COUNTER AND..
CENTER AIRCRAFT REF SYMBOL ON 400 FT ALT MARK.
101760-
101764
...AT SAME TIME OBSERVE ALT TAPE FOR DECREASE IN ALT.
ALT TAPE DECREASE LESS THAN WIDTH OF ALT MARK.
101760-
101768
ALT TAPE DECREASE OK
NO
5
YES
101772-
101776
READJUST ALT SIG INPUT TO 400 FT ALT INDICATION.
ALT SIG ADJ R1.
101780
ADJUST DH CONTROL ON UUT CW FOR 480 ON DH COUNTER AND...
CENTER AIRCRAFT REF SYMBOL ON 400 FT ALT MARK.
101780-
101784
...AT SAME TIME OBSERVE ALT TAPE FOR INCREASE IN ALT.
ALT TAPE INCREASE LESS THAN WIDTH OF ALT MARK.
1
SH 1
101780-
101788
ALT TAPE INCREASE OK
NO
CHK DIFFERENTIAL AND SPROCKET GEAR TRAIN. REPAIR AS REQD.
YES
101792-
101796
DECREASE ALT SIG INPUT TO 0 VDC.
ALT SIG ADJ R1.
TOTAL PERFORMANCE TEST
NO
YES
GO TO DECISION HEIGHT AND AUDIO WARN TEST FIG 711 (522-4825-002,522-4825-004, 522-4825-005) OR FIG 711A (522-4825-006)
GO TO POSTTEST, FIG 716

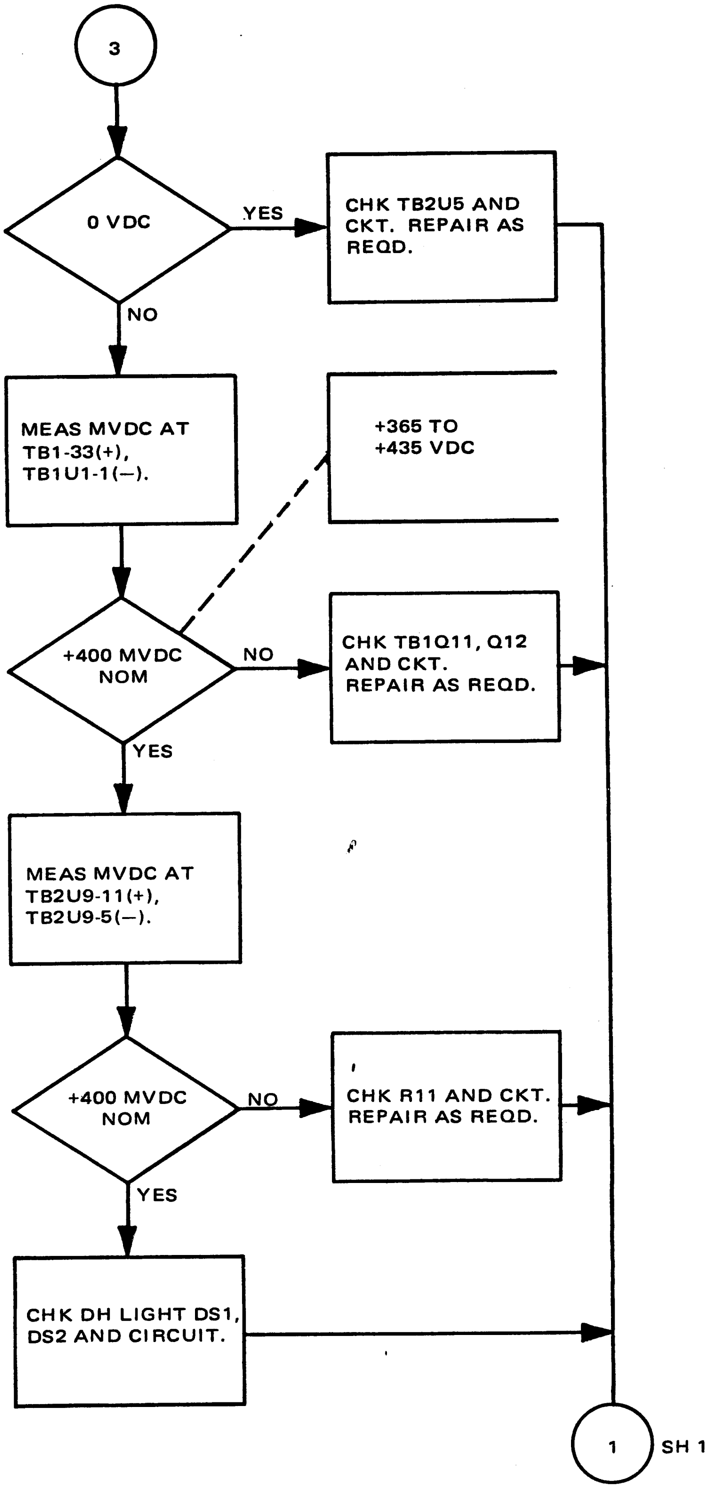
Decision Height Index and Counter Accuracy Test
Figure 710 (Sheet 4 of 4)


BEGIN
DECISION HEIGHT AND AUDIO WARN TEST (522-4825-002,522-4825-004,522-4825-005).
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST
YES
1
101900-101904
INCREASE ALT INPUT SIG TO +2.0 VDC.
DVM S8-ALT. ADJ ALT SIG ADJ R1.
101908-101912
ADJUST DH CONTROL ON UUT CENTER DH INDEX ON 0 FT ALT MARK.
101916-101920
ADJUST ALT SIG INPUT FOR 0 FT ALT INDICATION.
ALT SIG ADJ R1.
101924-101932
UUT DH INDICATOR
OUT
INDICATOR ADJUSTED
NO
PERFORM ADJUSTMENT PROCEDURE IN ASSY SECTION.
LIT
YES
4
SH 4
2
SH 2

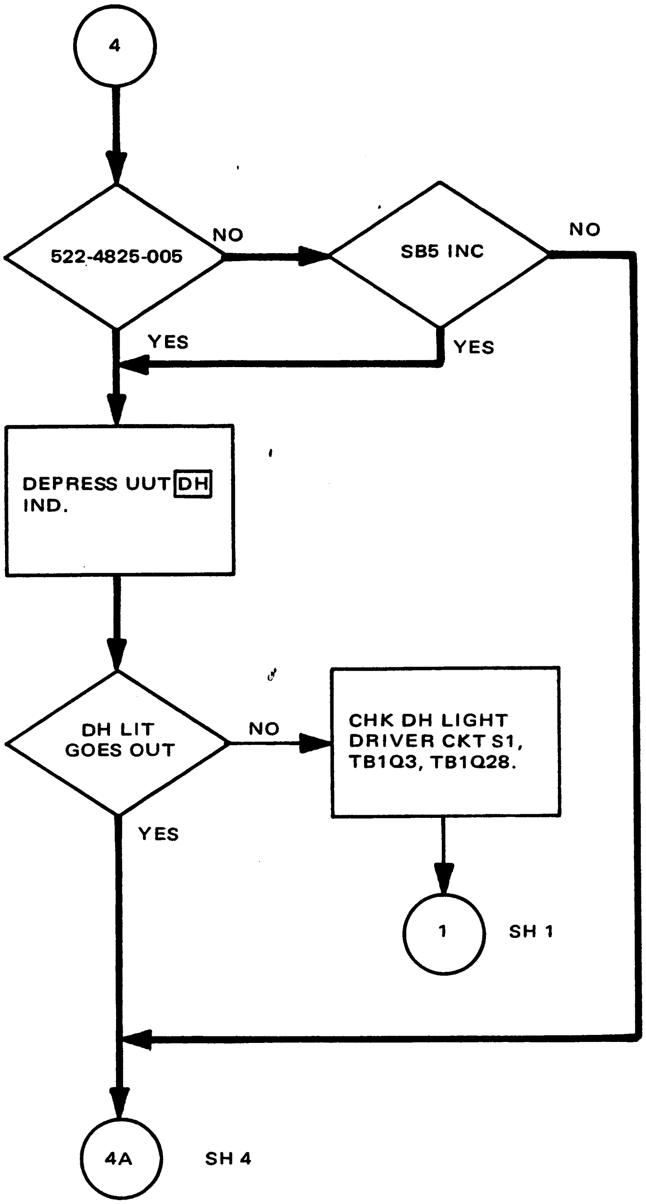
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 1 of 25)


2
MEAS VDC AT TB1-15(+), TB1-13(-).
+25 VDC NOM
NO
YES
MEAS VDC AT TB1-8(+), TB1-6(-).
+600 MVDC NOM
NO
YES
CHK FOR + VDC OUTPUT AT TB2-U5-5(+), TB2U5-2 (—).
MEAS VDC AT TB1-62(+), K2-7(-).
522-4825-002 = +5.0 V DC. 522-4825-004, 522-4825-005, AND 522-4825-008 = +28 V DC.
CHK TB1-Q3 AND CKT. REPAIR AS REQD.
+ VDC PRESENT
NO
YES
DH OK VDC
NO
YES
CHK RELAY K2 AND CKT. REPAIR AS REQD.
CHK S1, TB1Q28, TB1CR50, TB1CR13 AND CKT. REPAIR AS REQD.
CHK DH LIGHTS DS1, DS2 AND CKT. REPAIR AS REQD.
MEAS VDC AT TB2U9-8(+), TB2U9-5(—).
1
SH 1
3
SH 3

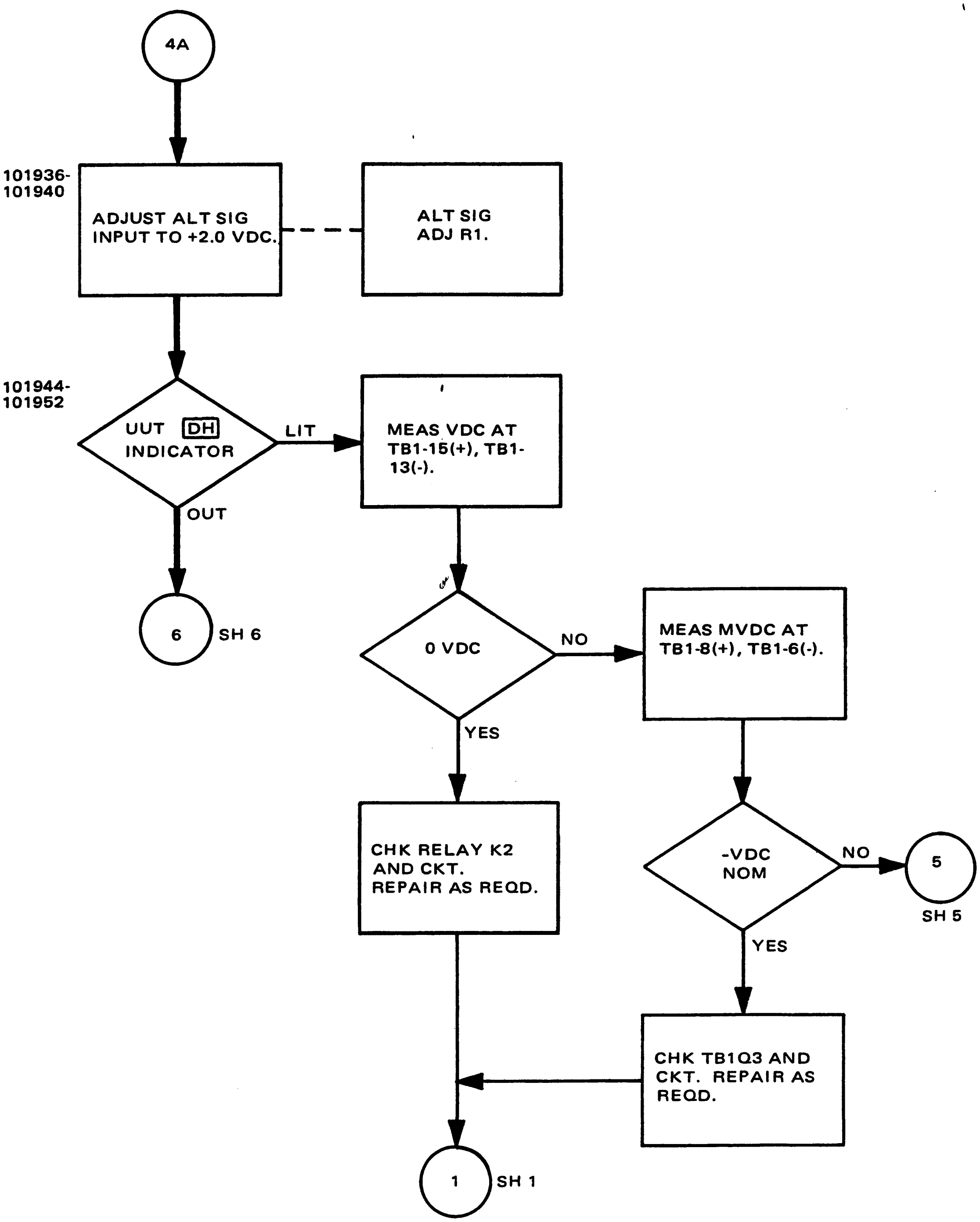
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 2)


3
0 VDC
YES
CHK TB2U5 AND CKT. REPAIR AS REQD.
NO
MEAS MVDC AT TB1-33(+), TB1U1-1(−).
+365 TO +435 VDC
+400 MVDC NOM
NO
CHK TB1Q11, Q12 AND CKT. REPAIR AS REQD.
YES
MEAS MVDC AT TB2U9-11(+), TB2U9-5(−).
+400 MVDC NOM
NO
CHK R11 AND CKT. REPAIR AS REQD.
YES
CHK DH LIGHT DS1, DS2 AND CIRCUIT.
1
SH 1

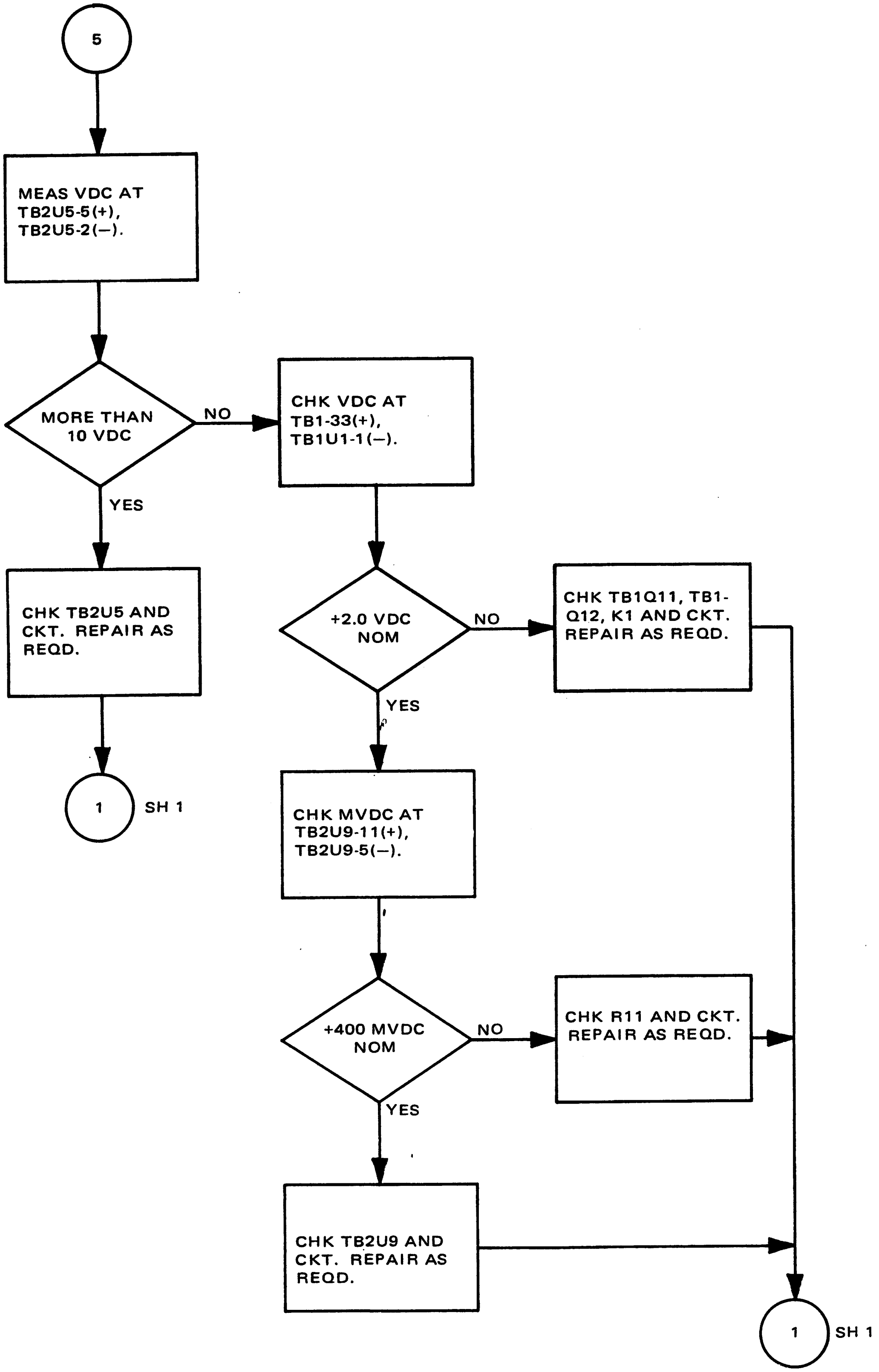
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 3 of 25)



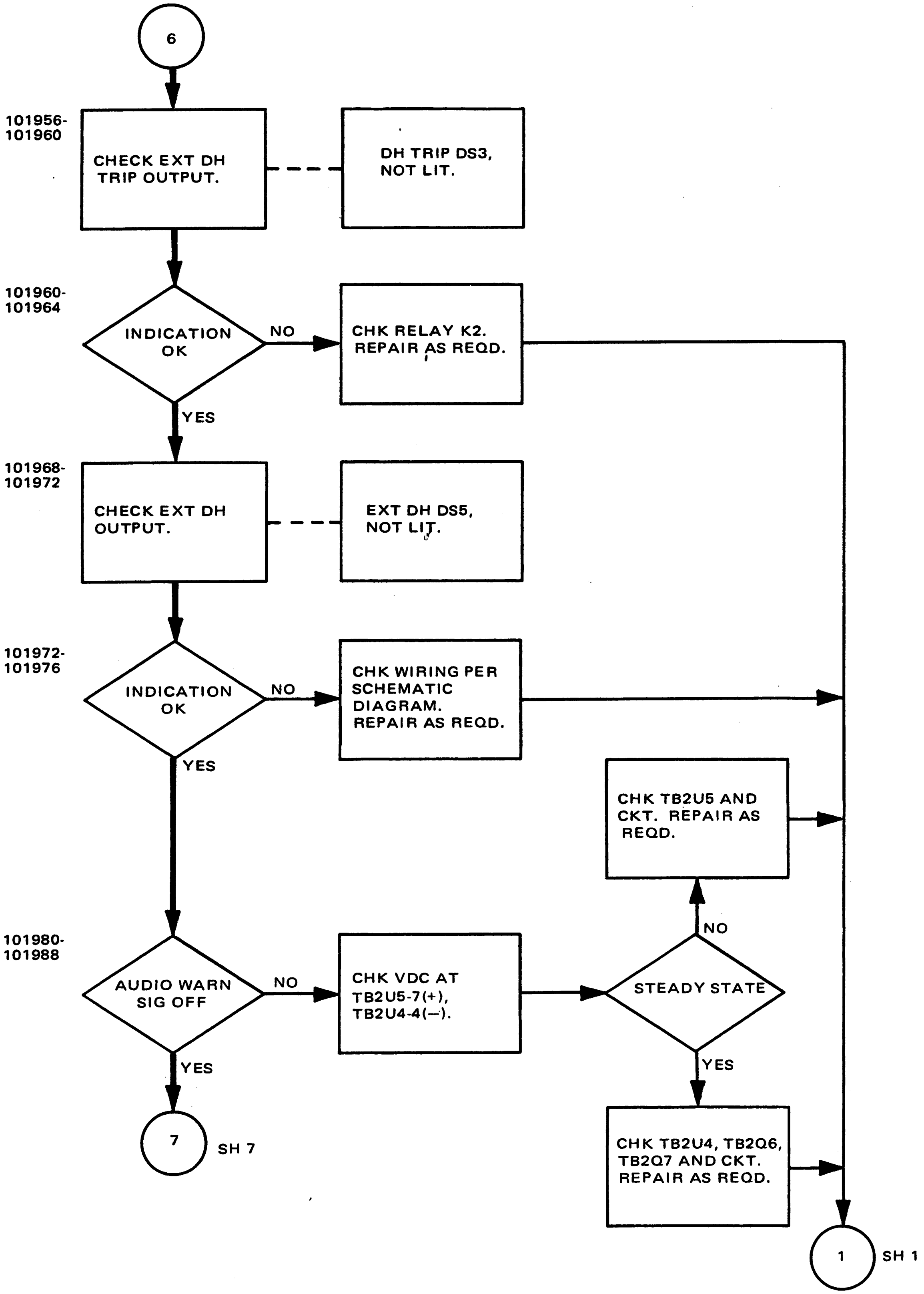
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 3A of 25)


4A
101936-
101940
ADJUST ALT SIG INPUT TO +2.0 VDC.
ALT SIG ADJ R1.
101944-
101952
UUT DH INDICATOR
LIT
OUT
MEAS VDC AT TB1-15(+), TB1-13(-).
6
SH 6
0 VDC
NO
YES
MEAS MVDC AT TB1-8(+), TB1-6(-).
CHK RELAY K2 AND CKT. REPAIR AS REQD.
-VDC NOM
NO
5
SH 5
YES
CHK TB1Q3 AND CKT. REPAIR AS REQD.
1
SH 1

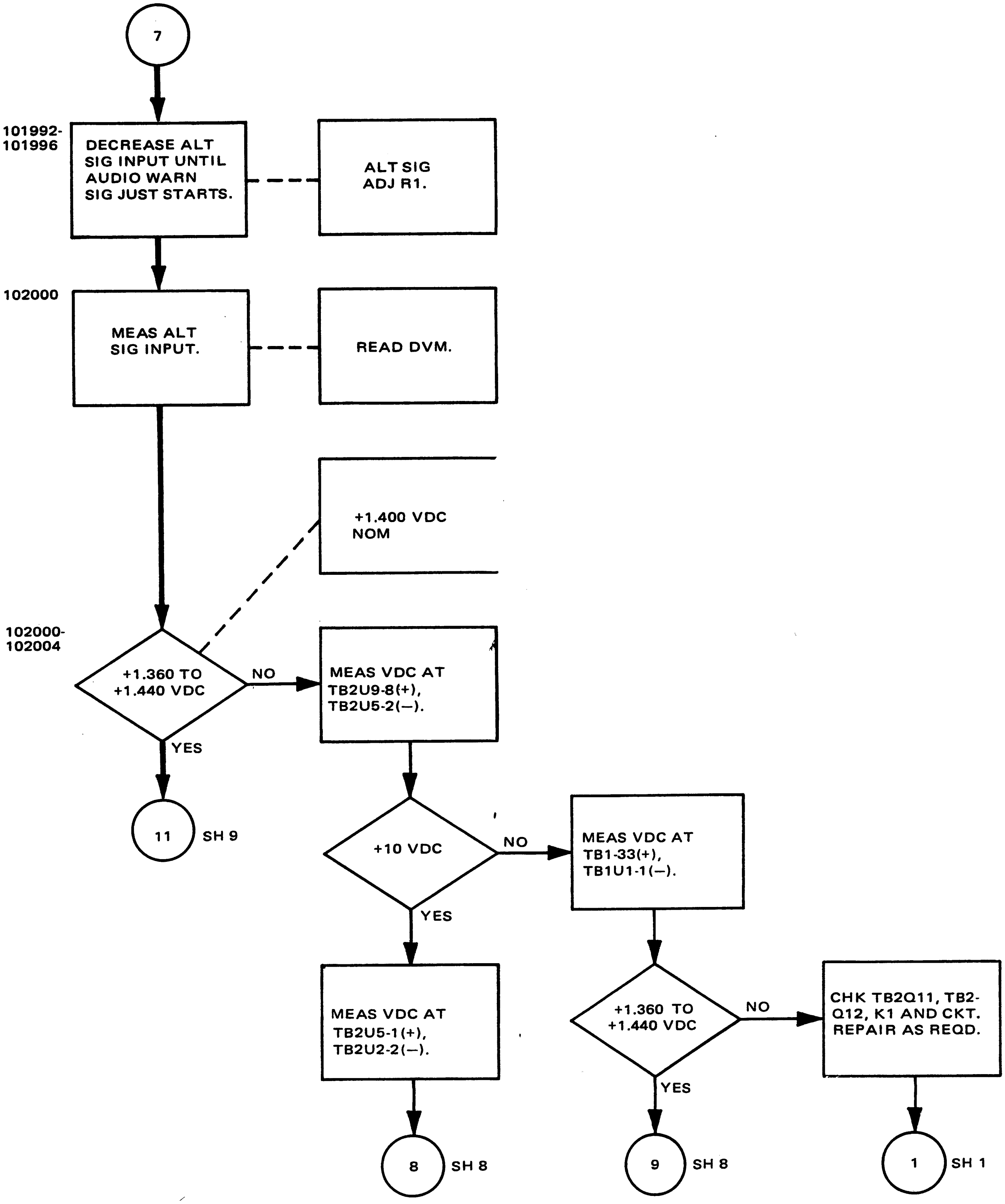
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 4 of 25)


5
MEAS VDC AT TB2U5-5(+), TB2U5-2(–).
MORE THAN 10 VDC
NO
YES
CHK VDC AT TB1-33(+), TB1U1-1(–).
CHK TB2U5 AND CKT. REPAIR AS REQD.
1
SH 1
+2.0 VDC NOM
NO
YES
CHK TB1Q11, TB1-Q12, K1 AND CKT. REPAIR AS REQD.
CHK MVDC AT TB2U9-11(+), TB2U9-5(–).
+400 MVDC NOM
NO
YES
CHK R11 AND CKT. REPAIR AS REQD.
CHK TB2U9 AND CKT. REPAIR AS REQD.
1
SH 1

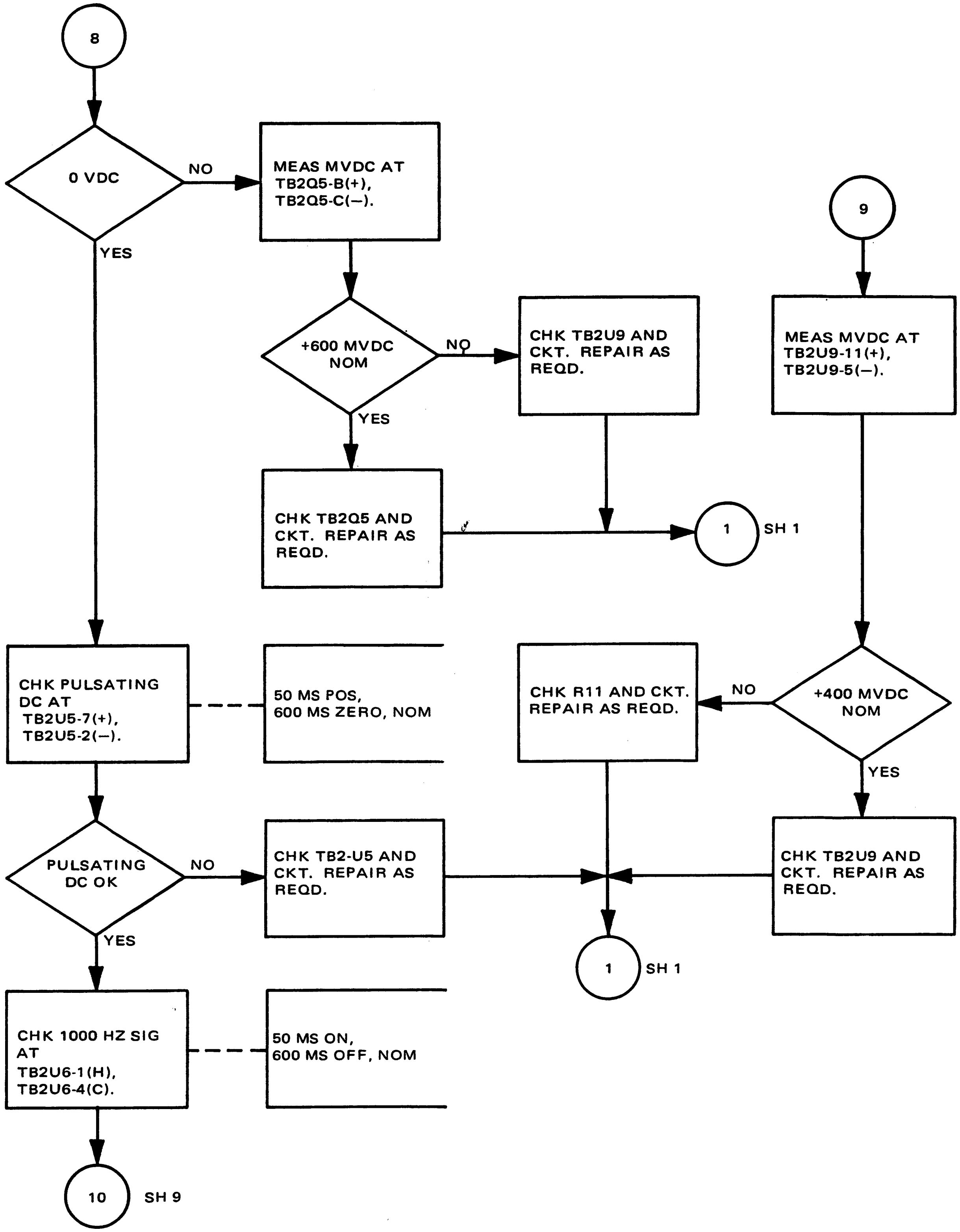
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 5 of 25)


6
101956-
101960
CHECK EXT DH TRIP OUTPUT.
DH TRIP DS3, NOT LIT.
101960-
101964
INDICATION OK
NO
CHK RELAY K2. REPAIR AS REQD.
YES
101968-
101972
CHECK EXT DH OUTPUT.
EXT DH DS5, NOT LIT.
101972-
101976
INDICATION OK
NO
CHK WIRING PER SCHEMATIC DIAGRAM. REPAIR AS REQD.
YES
CHK TB2U5 AND CKT. REPAIR AS REQD.
NO
101980-
101988
AUDIO WARN SIG OFF
NO
CHK VDC AT TB2U5-7(+), TB2U4-4(–).
STEADY STATE
YES
YES
CHK TB2U4, TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
7
SH 7
1
SH 1

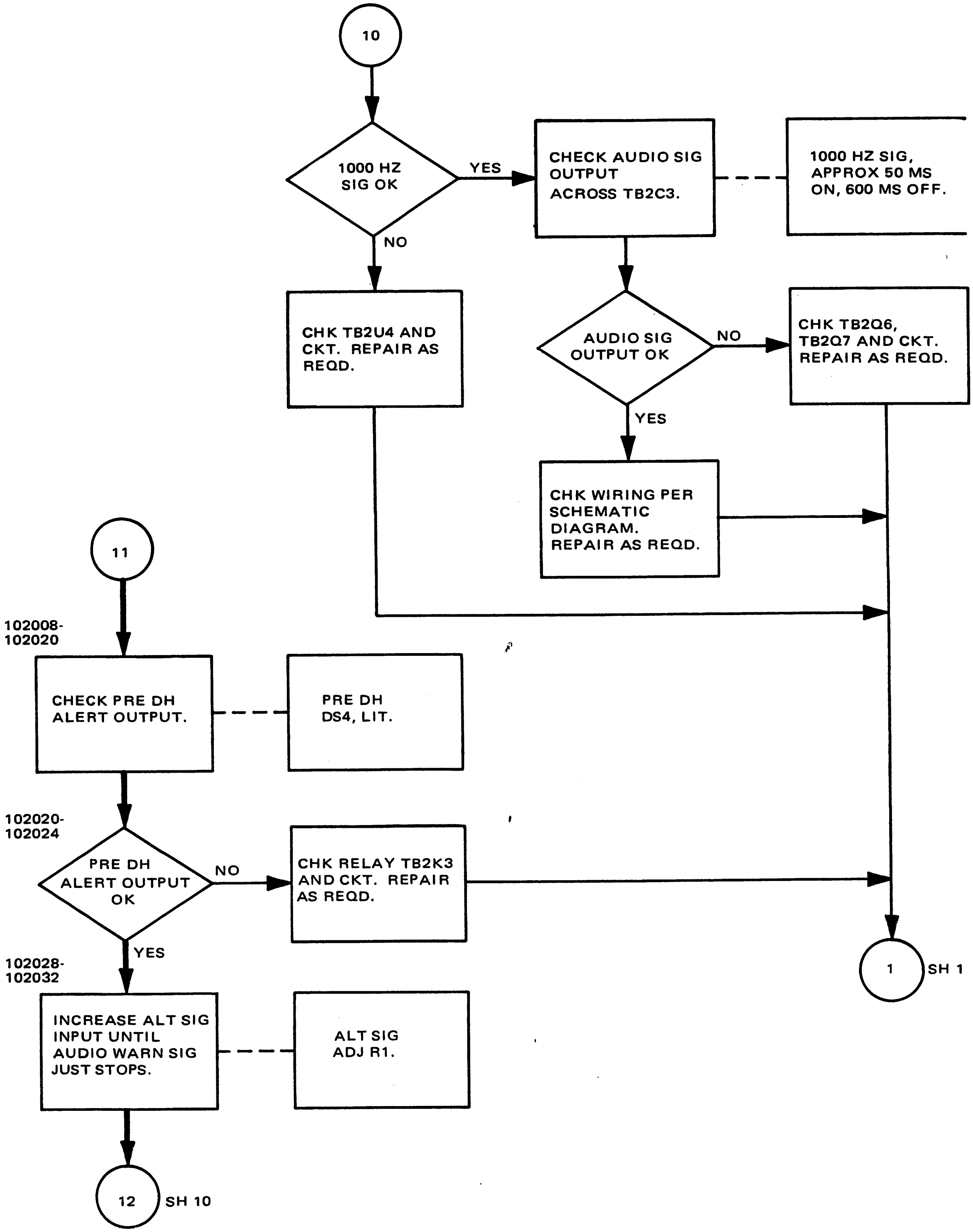
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 6 of 25)


7
101992-
101996
DECREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STARTS.
ALT SIG ADJ R1.
102000
MEAS ALT SIG INPUT.
READ DVM.
+1.400 VDC NOM
102000-
102004
+1.360 TO +1.440 VDC
NO
MEAS VDC AT TB2U9-8(+), TB2U5-2(—).
YES
11
SH 9
+10 VDC
NO
MEAS VDC AT TB1-33(+), TB1U1-1(—).
YES
MEAS VDC AT TB2U5-1(+), TB2U2-2(—).
+1.360 TO +1.440 VDC
NO
CHK TB2Q11, TB2-Q12, K1 AND CKT. REPAIR AS REQD.
YES
8
SH 8
9
SH 8
1
SH 1

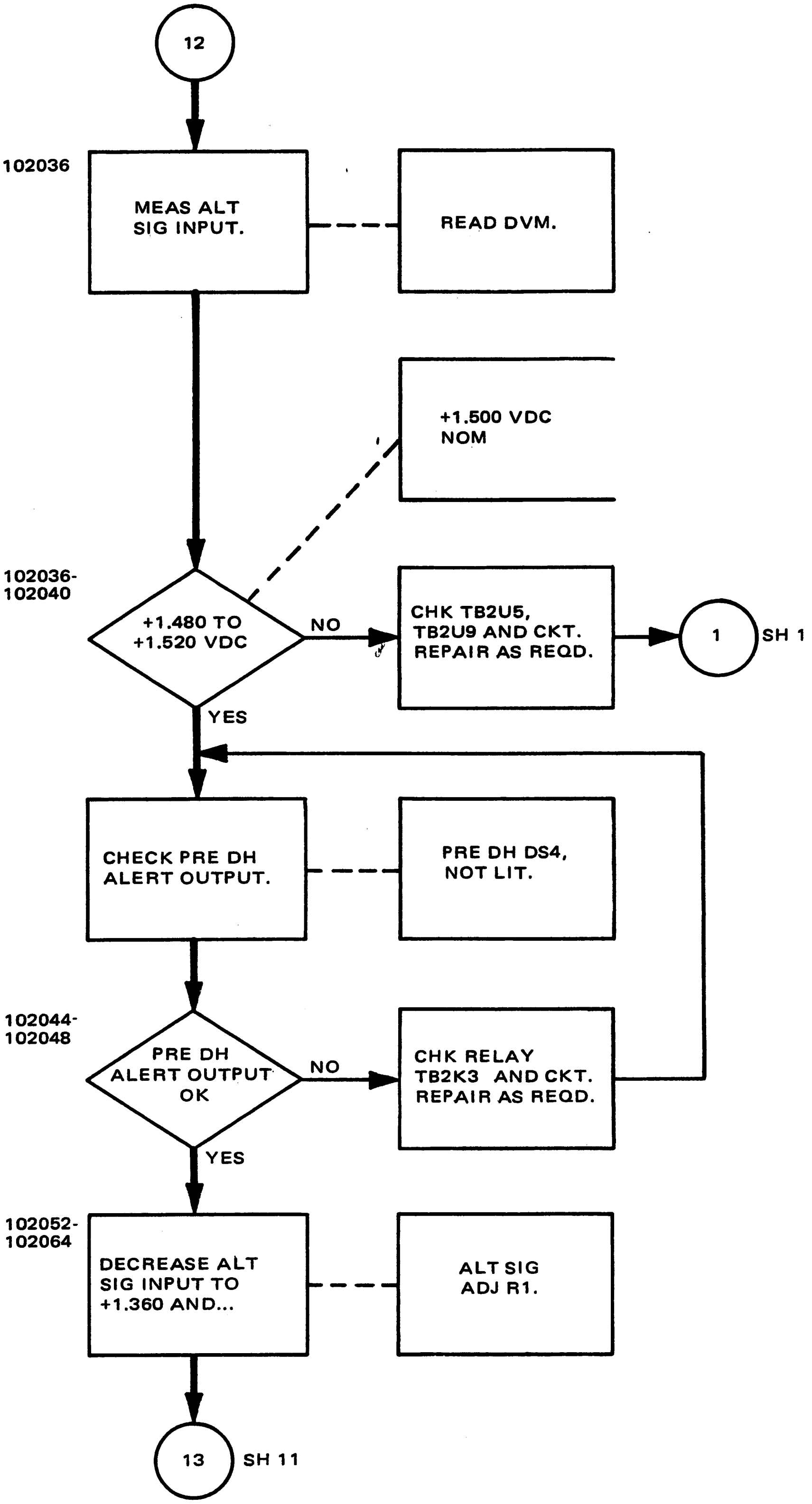
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 7 of 25)


8
0 VDC
NO
YES
MEAS MVDC AT TB2Q5-B(+), TB2Q5-C(–).
+600 MVDC NOM
NO
YES
CHK TB2U9 AND CKT. REPAIR AS REQD.
CHK TB2Q5 AND CKT. REPAIR AS REQD.
1
SH 1
9
MEAS MVDC AT TB2U9-11(+), TB2U9-5(–).
+400 MVDC NOM
NO
YES
CHK R11 AND CKT. REPAIR AS REQD.
CHK TB2U9 AND CKT. REPAIR AS REQD.
CHK PULSATING DC AT TB2U5-7(+), TB2U5-2(–).
50 MS POS, 600 MS ZERO, NOM
PULSATING DC OK
NO
YES
CHK TB2-U5 AND CKT. REPAIR AS REQD.
1
SH 1
CHK 1000 HZ SIG AT TB2U6-1(H), TB2U6-4(C).
50 MS ON, 600 MS OFF, NOM
10
SH 9

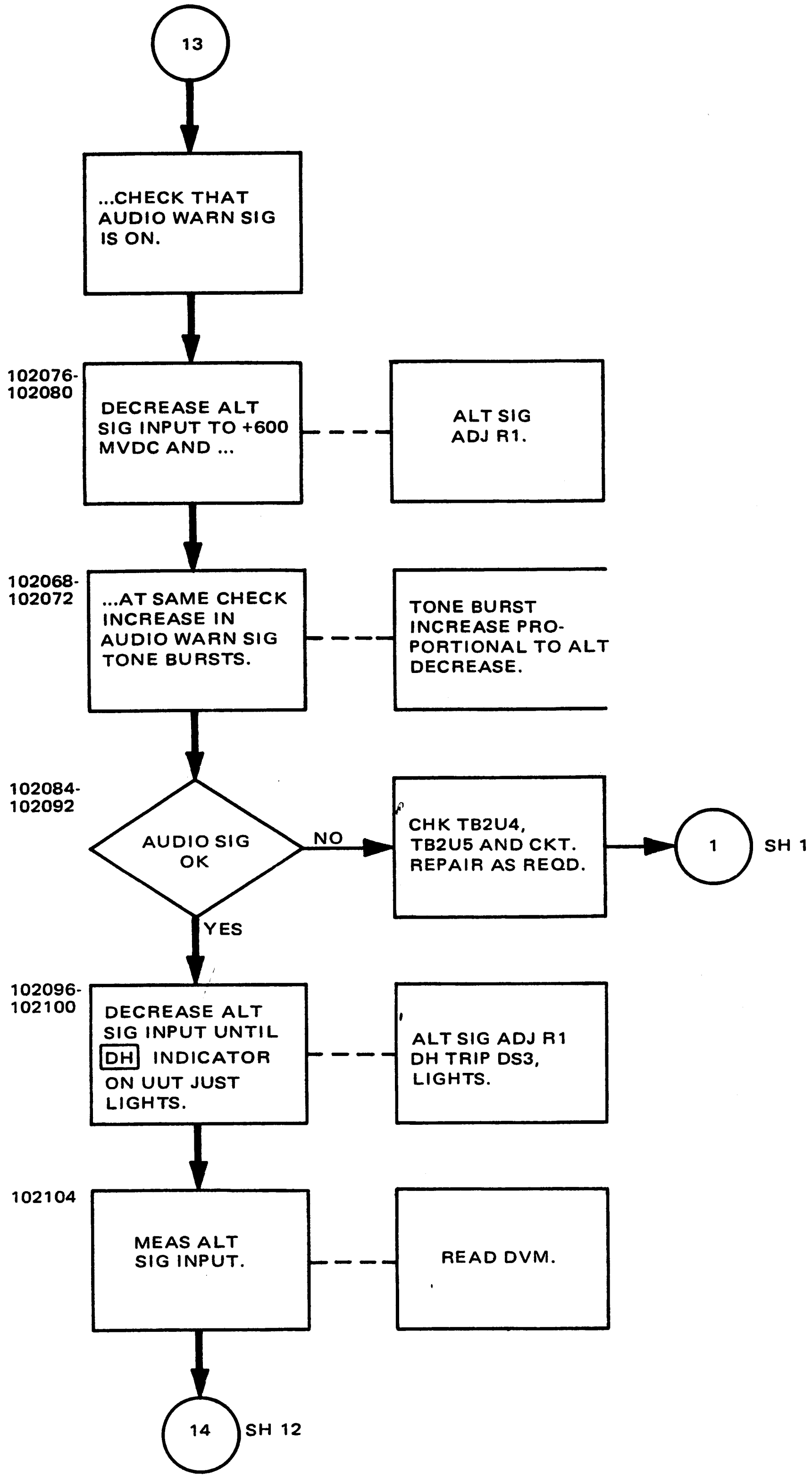
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 8 of 25)


10
1000 HZ SIG OK
YES
CHECK AUDIO SIG OUTPUT ACROSS TB2C3.
1000 HZ SIG, APPROX 50 MS ON, 600 MS OFF.
NO
CHK TB2U4 AND CKT. REPAIR AS REQD.
AUDIO SIG OUTPUT OK
NO
CHK TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
YES
CHK WIRING PER SCHEMATIC DIAGRAM. REPAIR AS REQD.
11
102008-102020
CHECK PRE DH ALERT OUTPUT.
PRE DH DS4, LIT.
102020-102024
PRE DH ALERT OUTPUT OK
NO
CHK RELAY TB2K3 AND CKT. REPAIR AS REQD.
YES
102028-102032
INCREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STOPS.
ALT SIG ADJ R1.
12
SH 10
1
SH 1

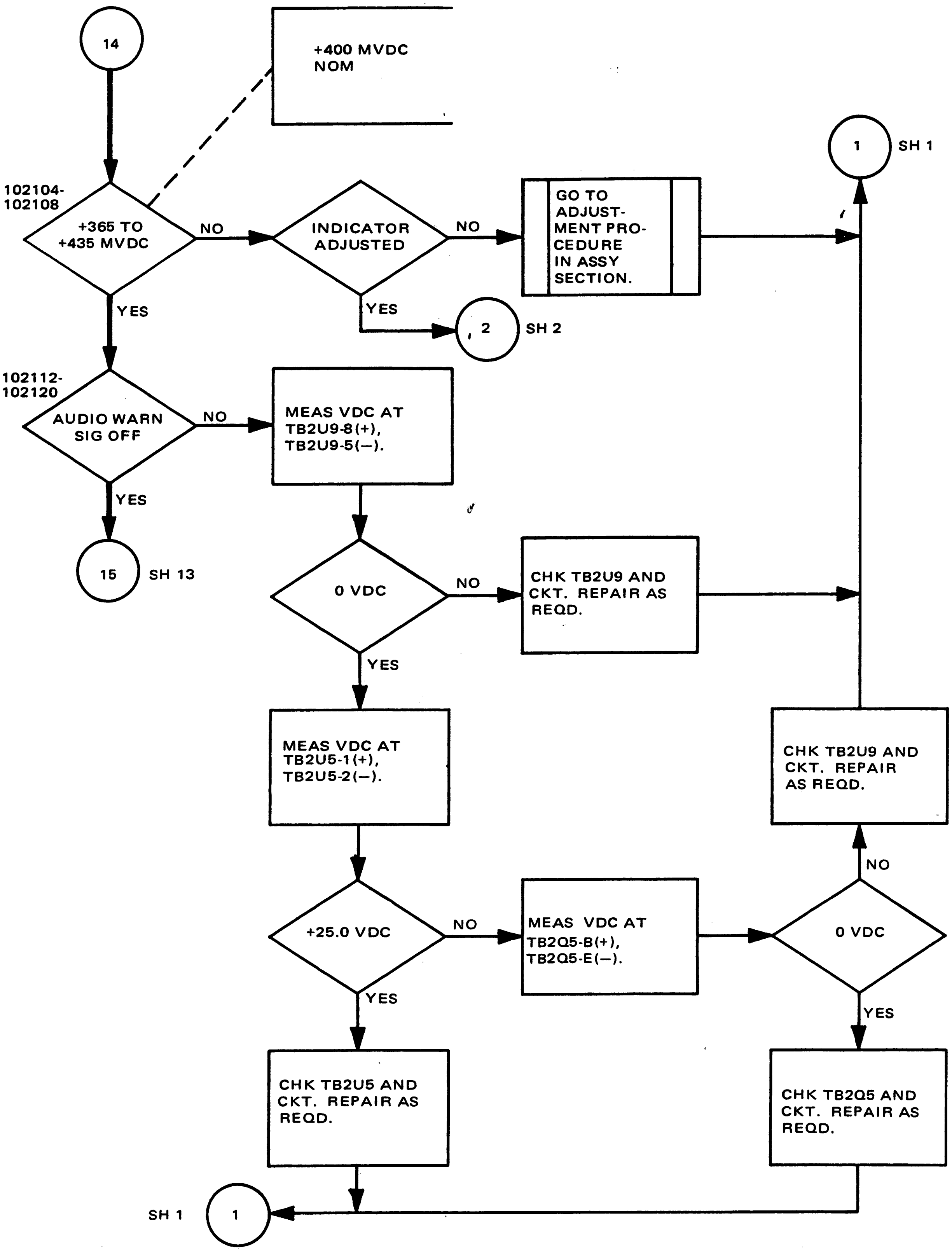
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 9 of 25)



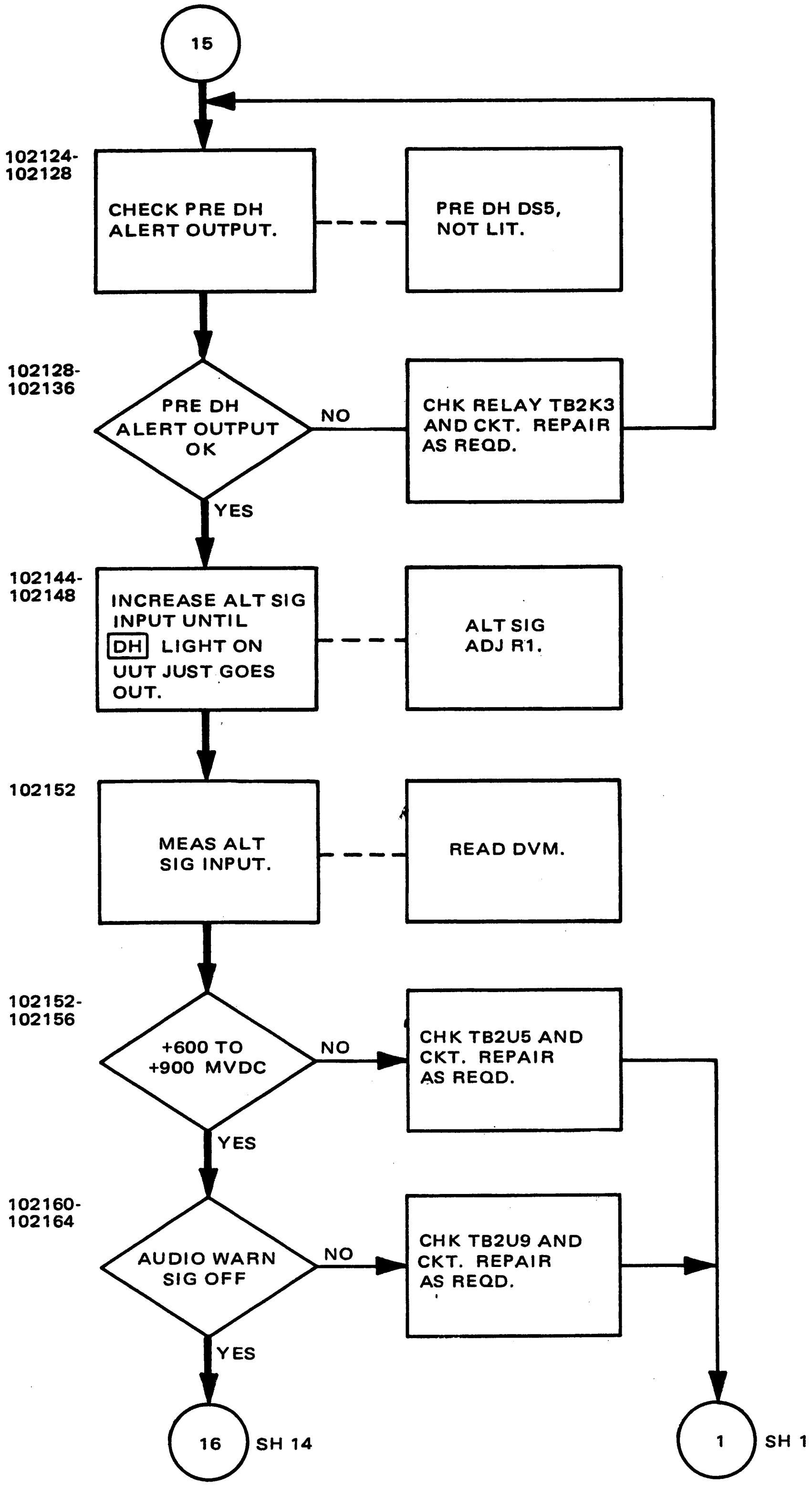
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 10 of 25)


13
...CHECK THAT AUDIO WARN SIG IS ON.
102076-102080
DECREASE ALT SIG INPUT TO +600 MVDC AND ...
ALT SIG ADJ R1.
102068-102072
...AT SAME CHECK INCREASE IN AUDIO WARN SIG TONE BURSTS.
TONE BURST INCREASE PROPORTIONAL TO ALT DECREASE.
102084-102092
AUDIO SIG OK
NO
CHK TB2U4, TB2U5 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102096-102100
DECREASE ALT SIG INPUT UNTIL DH INDICATOR ON UUT JUST LIGHTS.
ALT SIG ADJ R1 DH TRIP DS3, LIGHTS.
102104
MEAS ALT SIG INPUT.
READ DVM.
14
SH 12

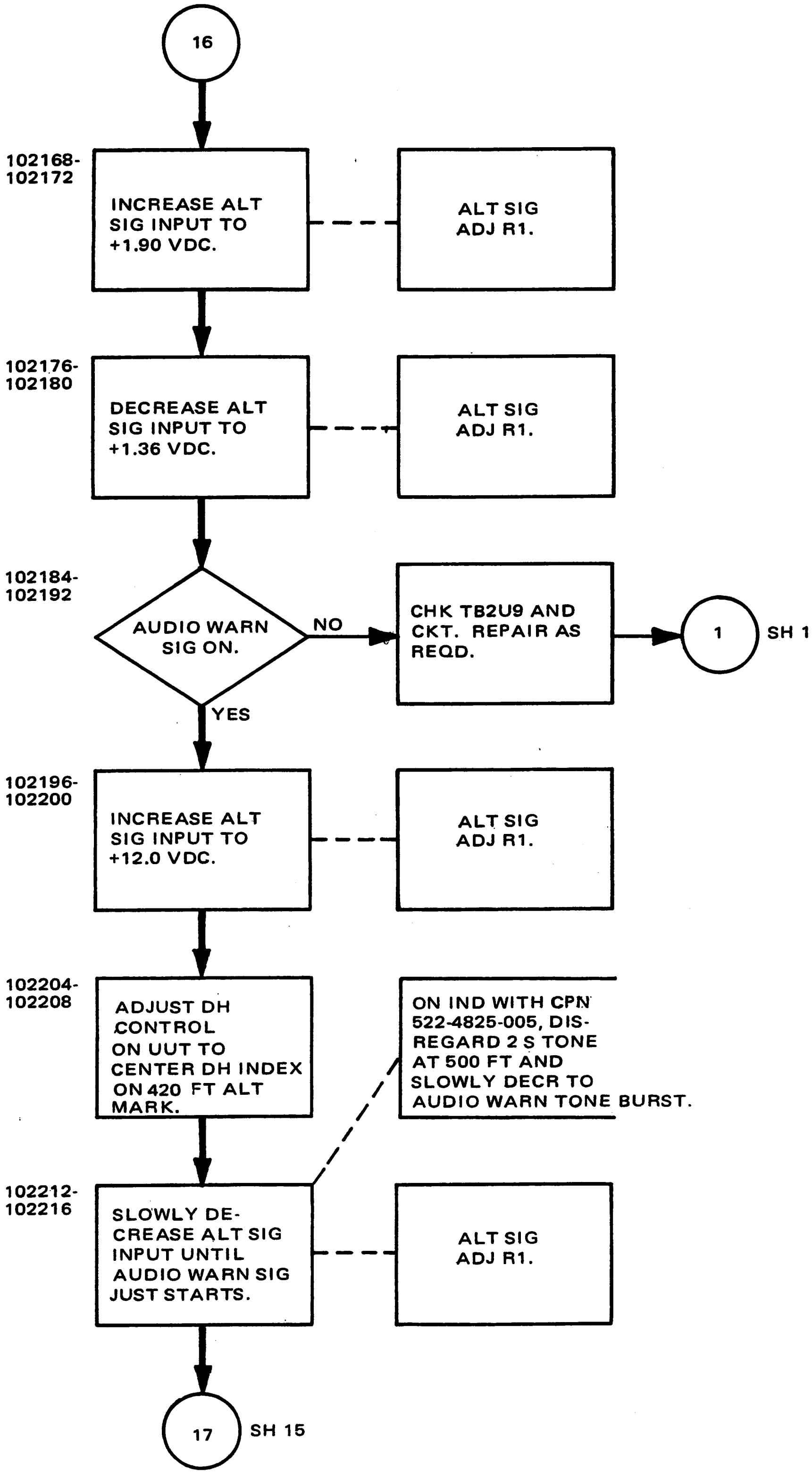
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 11 of 25)


14
+400 MVDC NOM
102104-102108
+365 TO +435 MVDC
NO
INDICATOR ADJUSTED
NO
GO TO ADJUSTMENT PROCEDURE IN ASSY SECTION.
1
SH 1
YES
YES
2
SH 2
102112-102120
AUDIO WARN SIG OFF
NO
MEAS VDC AT TB2U9-8(+), TB2U9-5(−).
YES
15
SH 13
0 VDC
NO
CHK TB2U9 AND CKT. REPAIR AS REQD.
YES
MEAS VDC AT TB2U5-1(+), TB2U5-2(−).
CHK TB2U9 AND CKT. REPAIR AS REQD.
NO
+25.0 VDC
NO
MEAS VDC AT TB2Q5-B(+), TB2Q5-E(−).
0 VDC
YES
YES
CHK TB2U5 AND CKT. REPAIR AS REQD.
CHK TB2Q5 AND CKT. REPAIR AS REQD.
SH 1
1

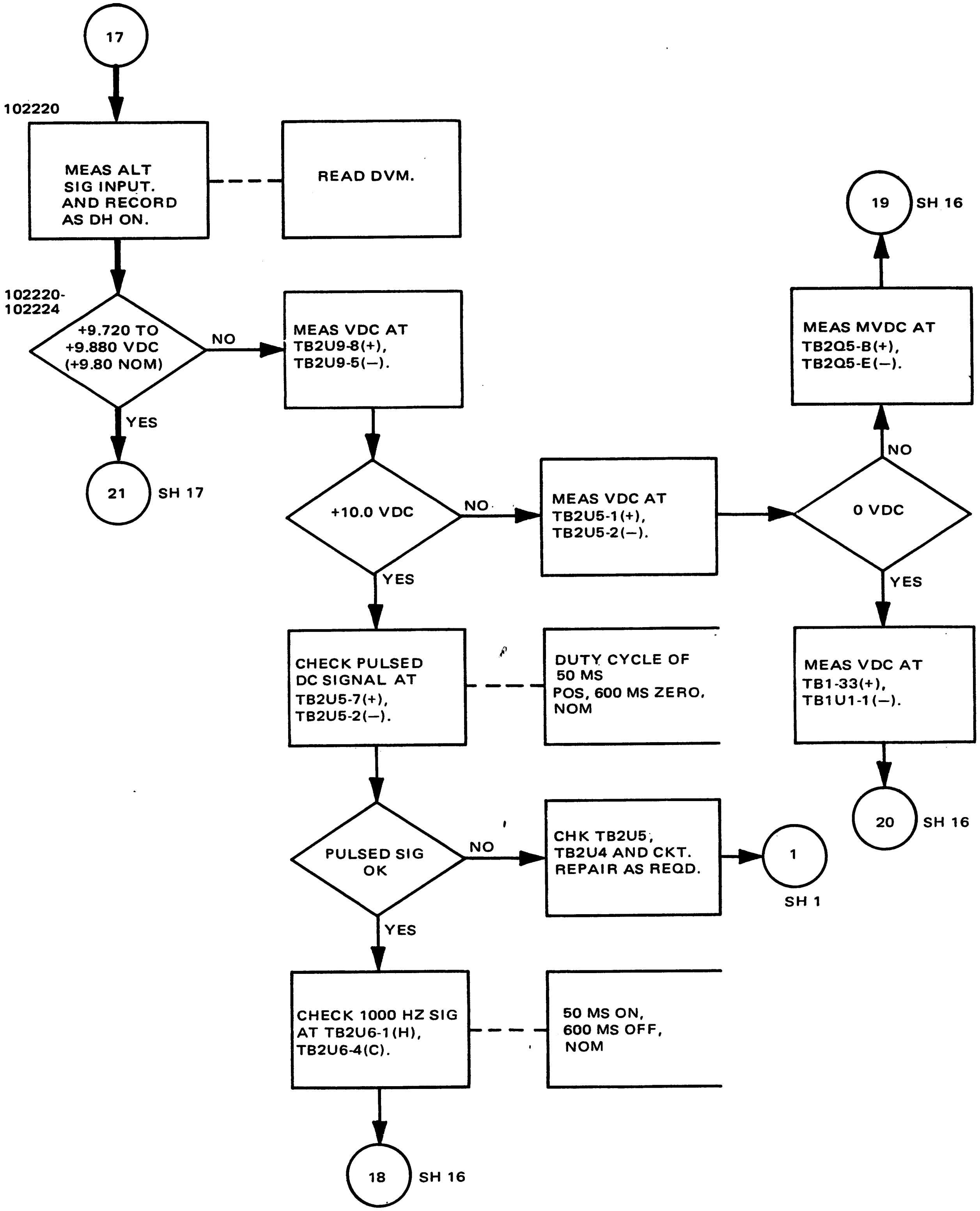
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 12 of 25)



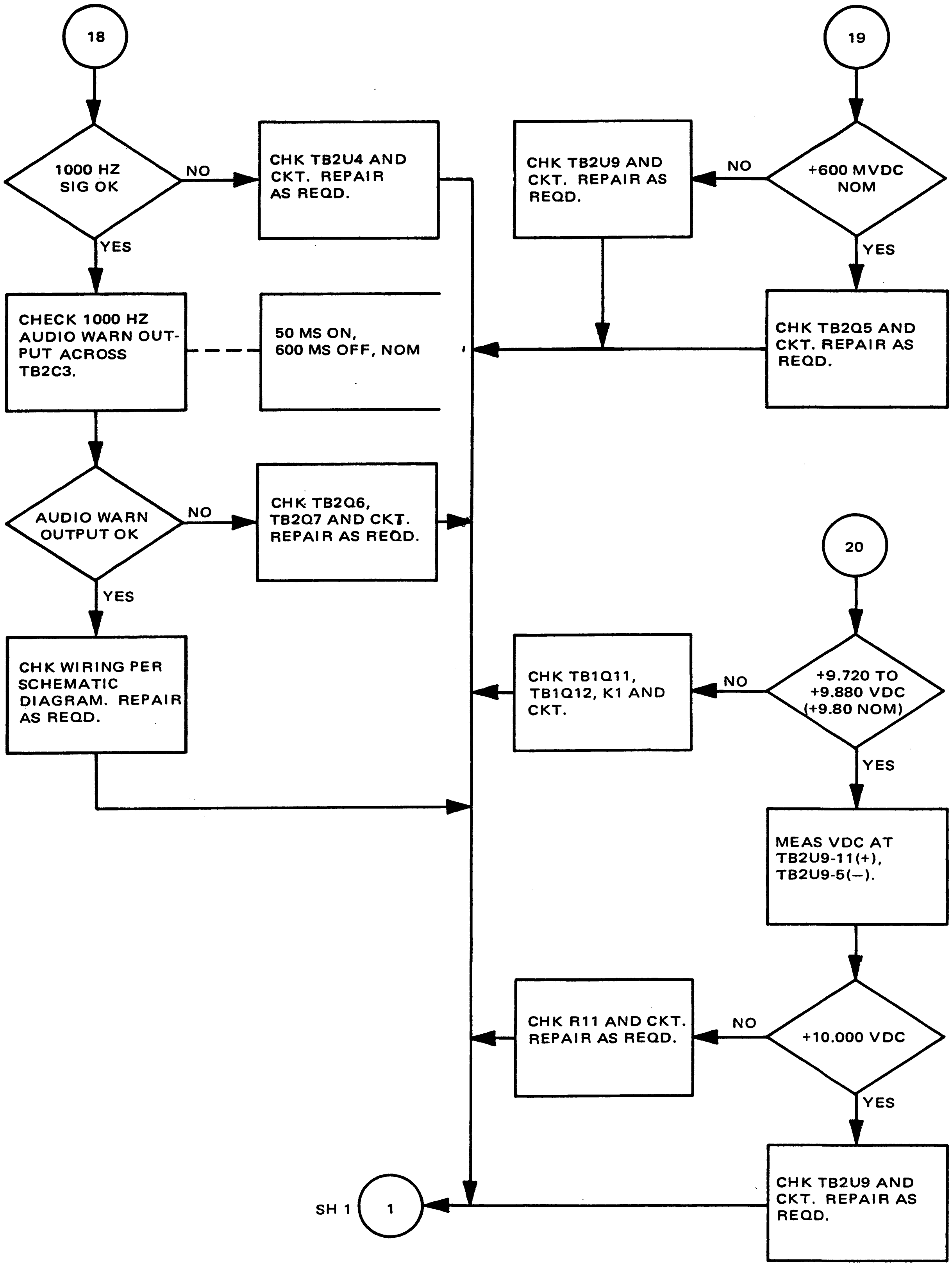
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 13 of 25)


16
102168-
102172
INCREASE ALT SIG INPUT TO +1.90 VDC.
ALT SIG ADJ R1.
102176-
102180
DECREASE ALT SIG INPUT TO +1.36 VDC.
ALT SIG ADJ R1.
102184-
102192
AUDIO WARN SIG ON.
NO
CHK TB2U9 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102196-
102200
INCREASE ALT SIG INPUT TO +12.0 VDC.
ALT SIG ADJ R1.
102204-
102208
ADJUST DH CONTROL ON UUT TO CENTER DH INDEX ON 420 FT ALT MARK.
ON IND WITH CPN 522-4825-005, DISREGARD 2 S TONE AT 500 FT AND SLOWLY DECR TO AUDIO WARN TONE BURST.
102212-
102216
SLOWLY DECREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STARTS.
ALT SIG ADJ R1.
17
SH 15

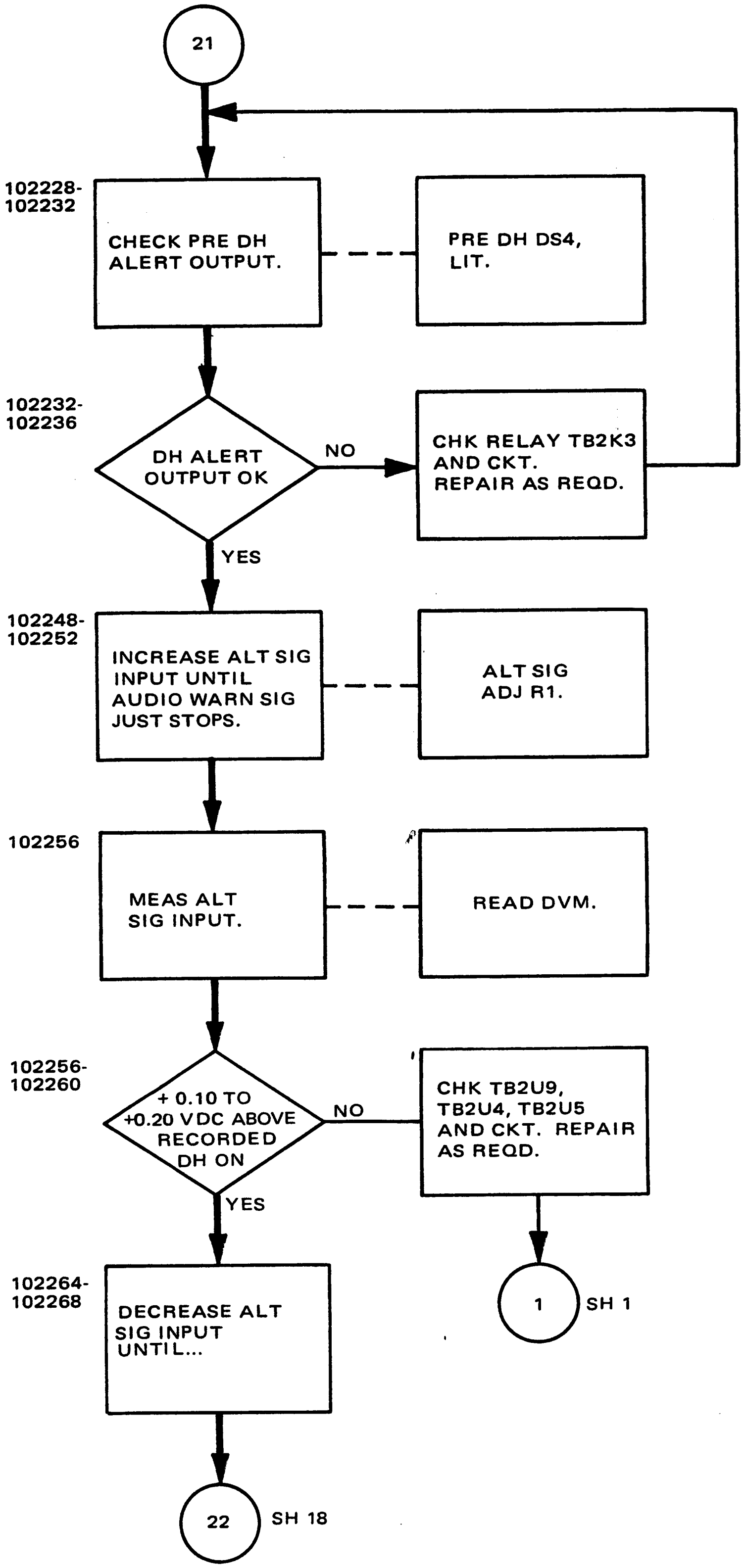
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 14 of 25)


17
102220
MEAS ALT SIG INPUT. AND RECORD AS DH ON.
READ DVM.
102220-102224
+9.720 TO +9.880 VDC (+9.80 NOM)
NO
YES
21
SH 17
MEAS VDC AT TB2U9-8(+), TB2U9-5(–).
+10.0 VDC
NO
YES
MEAS VDC AT TB2U5-1(+), TB2U5-2(–).
0 VDC
NO
YES
MEAS MVDC AT TB2Q5-B(+), TB2Q5-E(–).
19
SH 16
MEAS VDC AT TB1-33(+), TB1U1-1(–).
20
SH 16
CHECK PULSED DC SIGNAL AT TB2U5-7(+), TB2U5-2(–).
DUTY CYCLE OF 50 MS POS, 600 MS ZERO, NOM
PULSED SIG OK
NO
YES
CHK TB2U5, TB2U4 AND CKT. REPAIR AS REQD.
1
SH 1
CHECK 1000 HZ SIG AT TB2U6-1(H), TB2U6-4(C).
50 MS ON, 600 MS OFF, NOM
18
SH 16

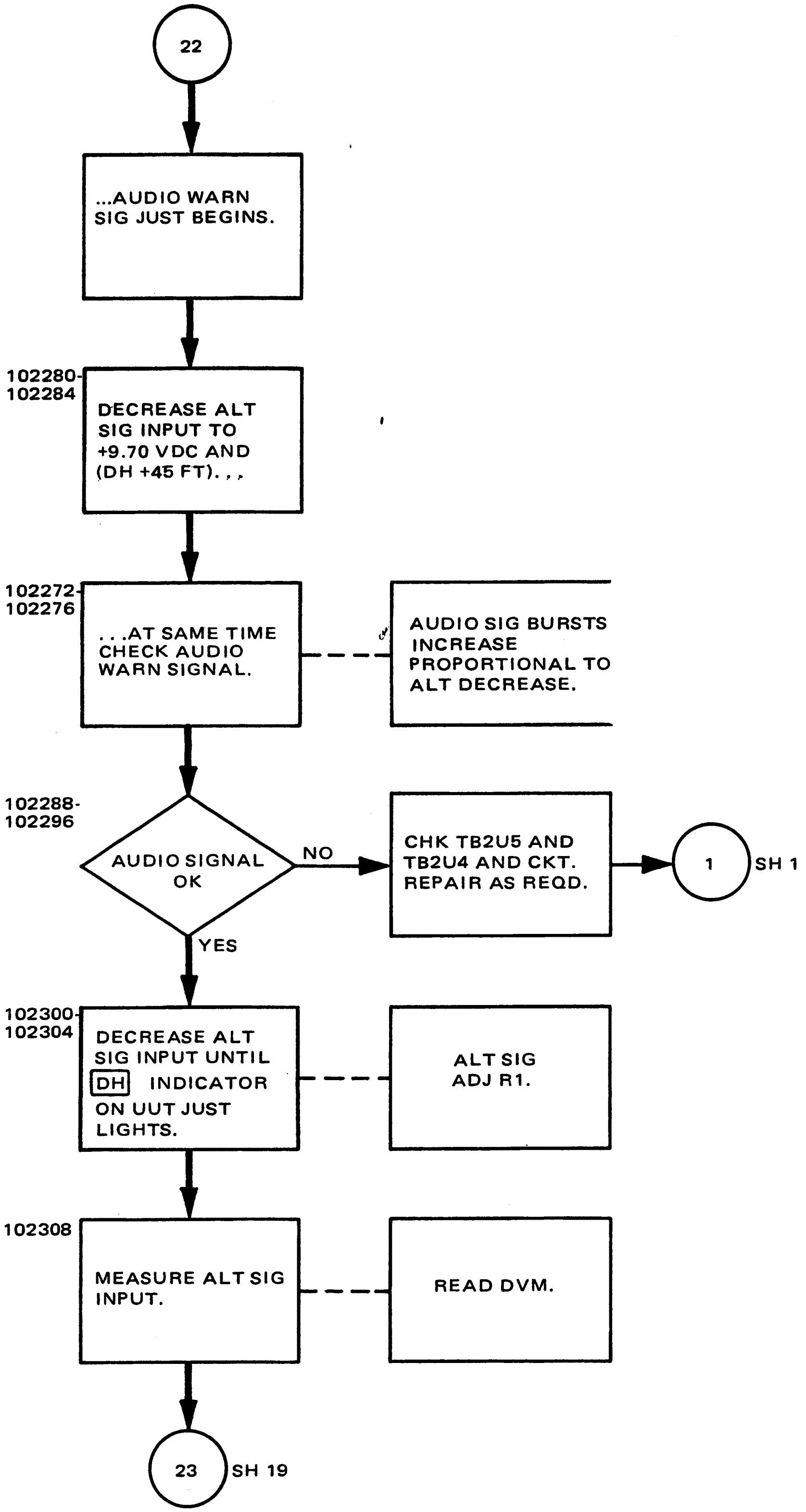
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 15 of 25)


18
1000 HZ SIG OK
NO
CHK TB2U4 AND CKT. REPAIR AS REQD.
YES
CHECK 1000 HZ AUDIO WARN OUTPUT ACROSS TB2C3.
50 MS ON, 600 MS OFF, NOM
AUDIO WARN OUTPUT OK
NO
CHK TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
YES
CHK WIRING PER SCHEMATIC DIAGRAM. REPAIR AS REQD.
19
+600 MVDC NOM
NO
CHK TB2U9 AND CKT. REPAIR AS REQD.
YES
CHK TB2Q5 AND CKT. REPAIR AS REQD.
20
+9.720 TO +9.880 VDC (+9.80 NOM)
NO
CHK TB1Q11, TB1Q12, K1 AND CKT.
YES
MEAS VDC AT TB2U9-11(+), TB2U9-5(–).
+10.000 VDC
NO
CHK R11 AND CKT. REPAIR AS REQD.
YES
CHK TB2U9 AND CKT. REPAIR AS REQD.
SH 1
1

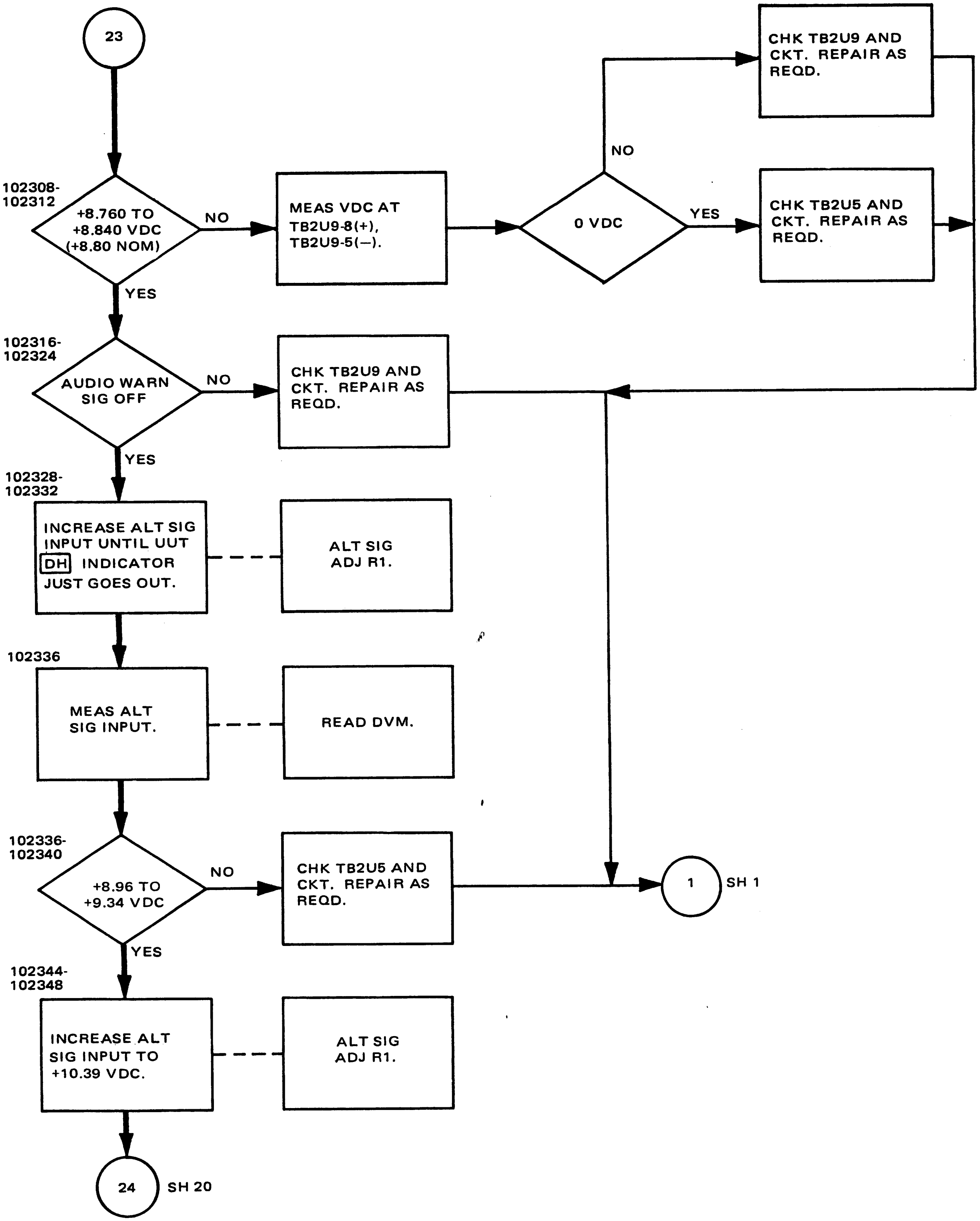
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 16 of 25)


21
102228-
102232
CHECK PRE DH ALERT OUTPUT.
PRE DH DS4, LIT.
102232-
102236
DH ALERT OUTPUT OK
NO
CHK RELAY TB2K3 AND CKT. REPAIR AS REQD.
YES
102248-
102252
INCREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STOPS.
ALT SIG ADJ R1.
102256
MEAS ALT SIG INPUT.
READ DVM.
102256-
102260
+ 0.10 TO +0.20 VDC ABOVE RECORDED DH ON
NO
CHK TB2U9, TB2U4, TB2U5 AND CKT. REPAIR AS REQD.
YES
1
SH 1
102264-
102268
DECREASE ALT SIG INPUT UNTIL...
22
SH 18

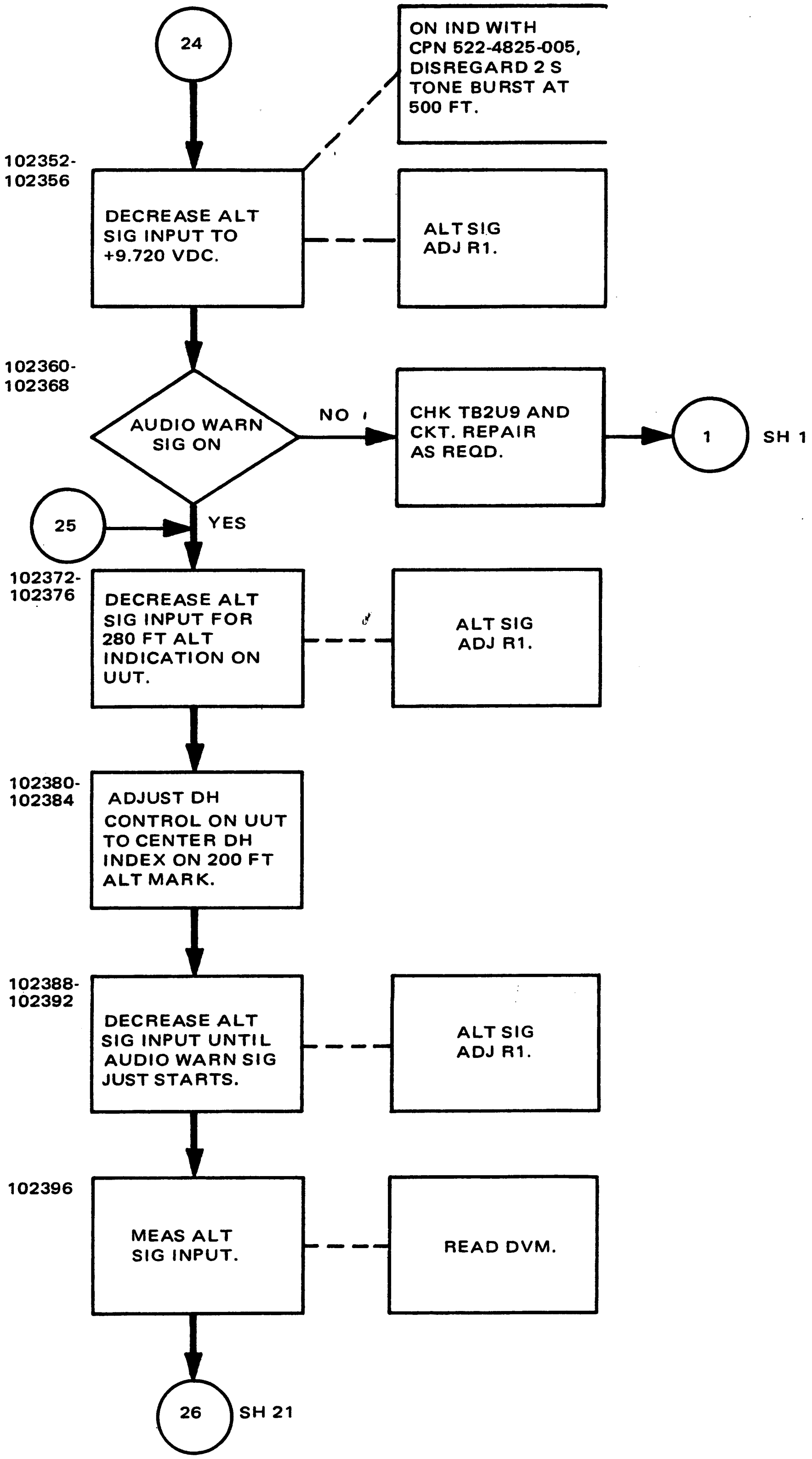
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 17)


22
...AUDIO WARN SIG JUST BEGINS.
102280-102284
DECREASE ALT SIG INPUT TO +9.70 VDC AND (DH +45 FT). . .
102272-102276
. . .AT SAME TIME CHECK AUDIO WARN SIGNAL.
AUDIO SIG BURSTS INCREASE PROPORTIONAL TO ALT DECREASE.
102288-102296
AUDIO SIGNAL OK
NO
CHK TB2U5 AND TB2U4 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102300-102304
DECREASE ALT SIG INPUT UNTIL DH INDICATOR ON UUT JUST LIGHTS.
ALT SIG ADJ R1.
102308
MEASURE ALT SIG INPUT.
READ DVM.
23
SH 19

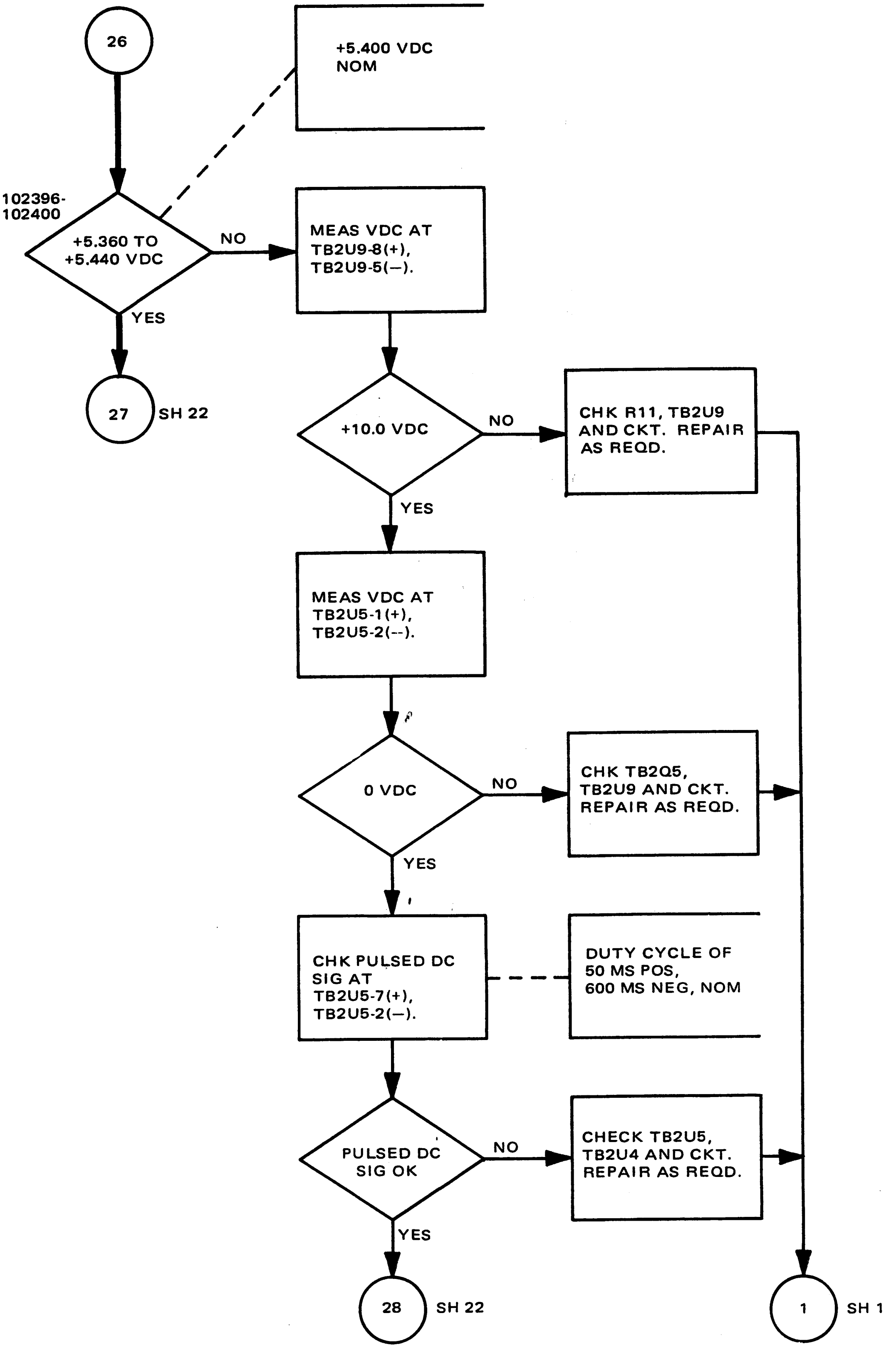
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 18)



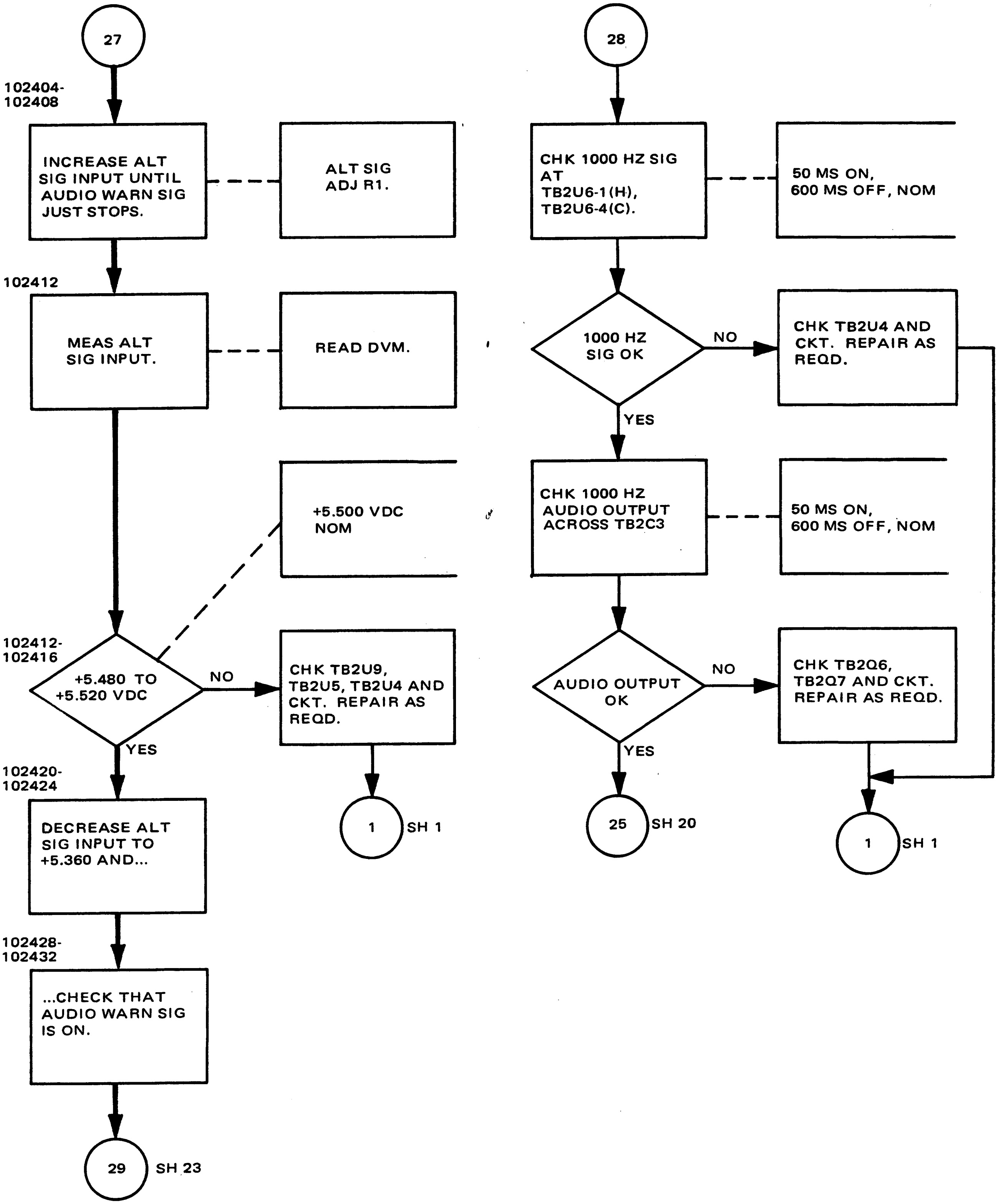
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 19)


24
ON IND WITH CPN 522-4825-005, DISREGARD 2 S TONE BURST AT 500 FT.
102352-102356
DECREASE ALT SIG INPUT TO +9.720 VDC.
ALT SIG ADJ R1.
102360-102368
AUDIO WARN SIG ON
NO
CHK TB2U9 AND CKT. REPAIR AS REQD.
1
SH 1
25
YES
102372-102376
DECREASE ALT SIG INPUT FOR 280 FT ALT INDICATION ON UUT.
ALT SIG ADJ R1.
102380-102384
ADJUST DH CONTROL ON UUT TO CENTER DH INDEX ON 200 FT ALT MARK.
102388-102392
DECREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STARTS.
ALT SIG ADJ R1.
102396
MEAS ALT SIG INPUT.
READ DVM.
26
SH 21

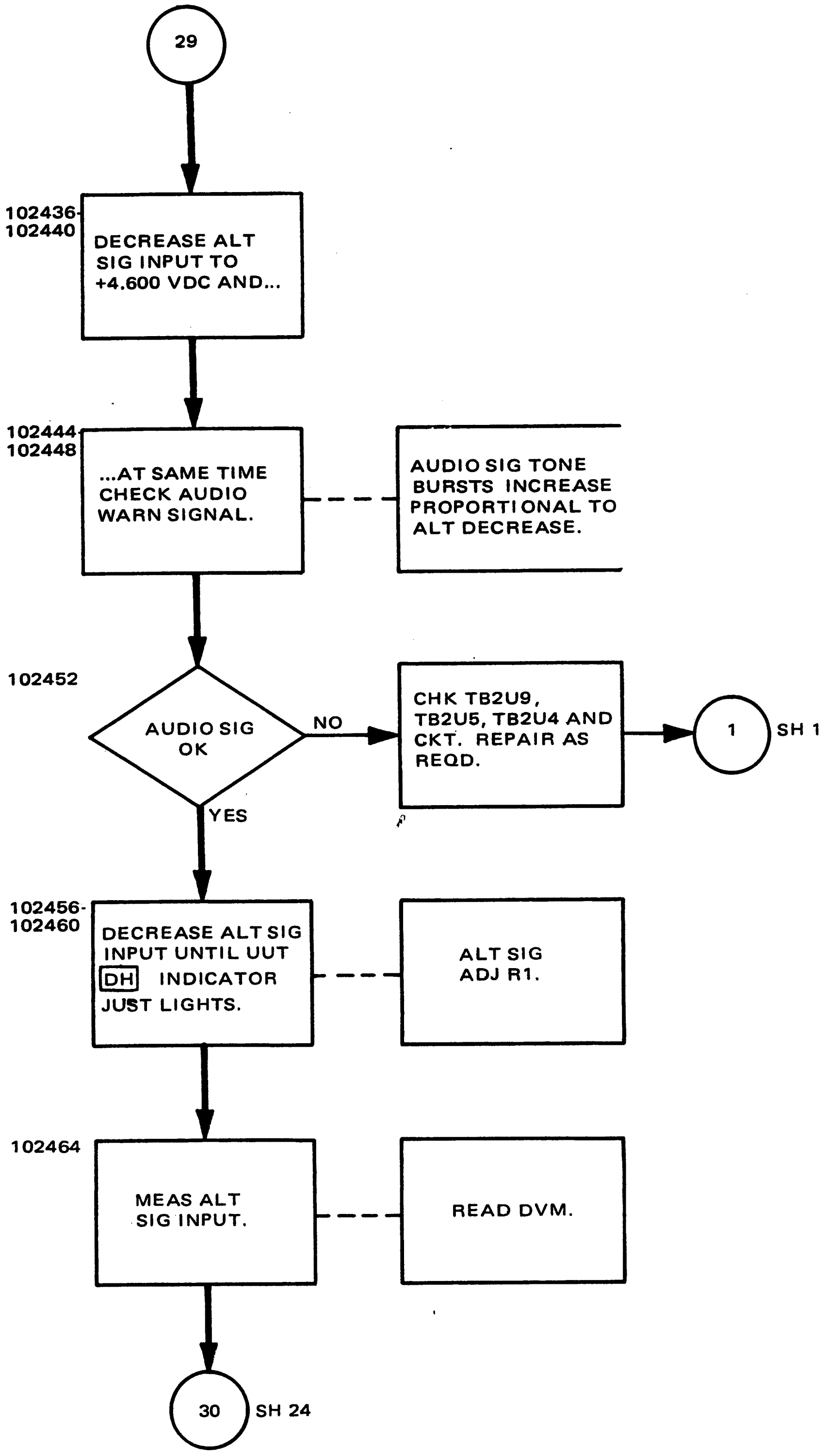
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 20 of 25)


26
+5.400 VDC NOM
102396-102400
+5.360 TO +5.440 VDC
NO
YES
27
SH 22
MEAS VDC AT TB2U9-8(+), TB2U9-5(−).
+10.0 VDC
NO
YES
CHK R11, TB2U9 AND CKT. REPAIR AS REQD.
MEAS VDC AT TB2U5-1(+), TB2U5-2(−).
0 VDC
NO
YES
CHK TB2Q5, TB2U9 AND CKT. REPAIR AS REQD.
CHK PULSED DC SIG AT TB2U5-7(+), TB2U5-2(−).
DUTY CYCLE OF 50 MS POS, 600 MS NEG, NOM
PULSED DC SIG OK
NO
YES
CHECK TB2U5, TB2U4 AND CKT. REPAIR AS REQD.
28
SH 22
1
SH 1

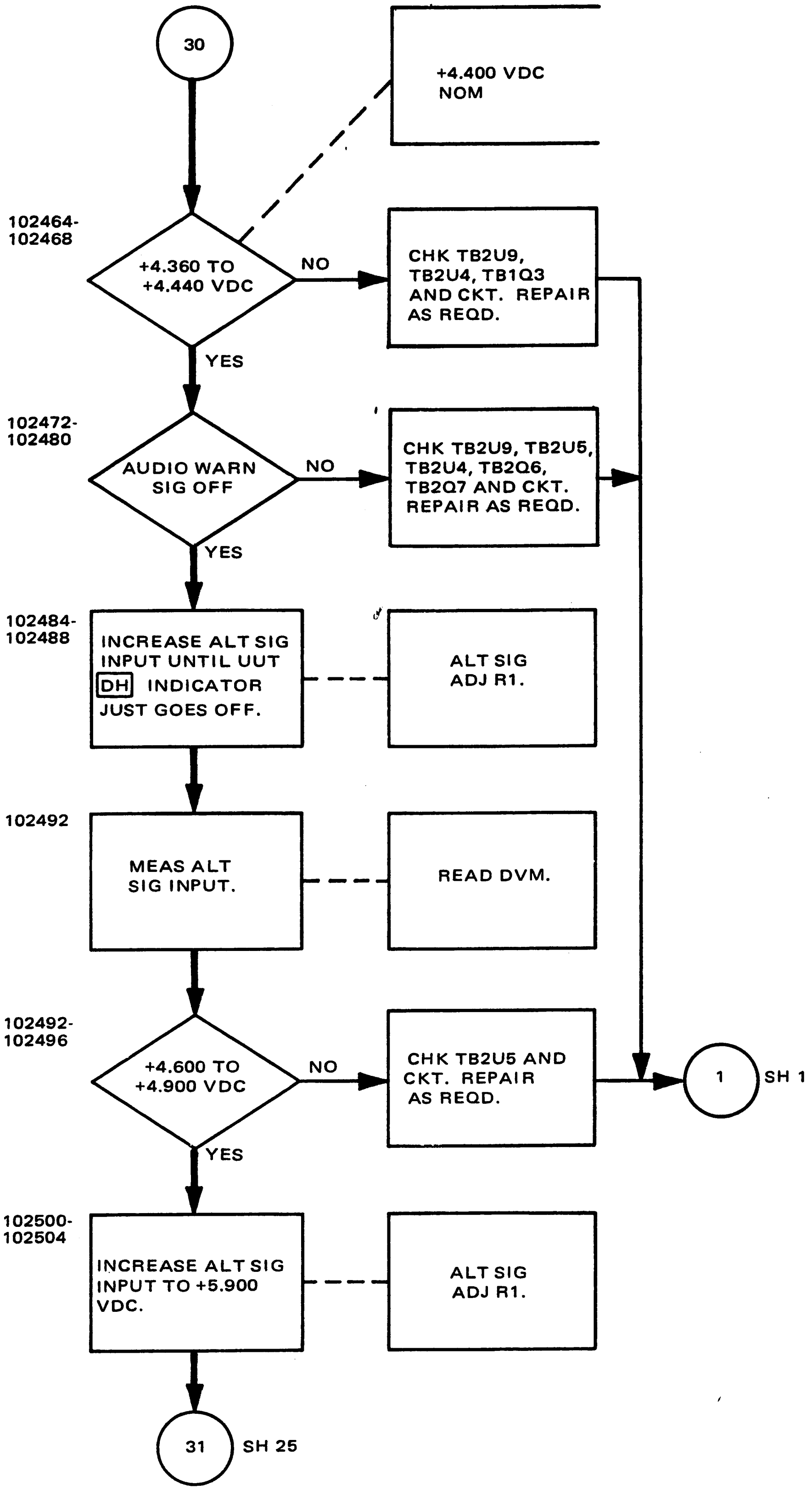
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 21 of 25)


27
102404-
102408
INCREASE ALT SIG INPUT UNTIL AUDIO WARN SIG JUST STOPS.
ALT SIG ADJ R1.
102412
MEAS ALT SIG INPUT.
READ DVM.
+5.500 VDC NOM
102412-
102416
+5.480 TO +5.520 VDC
NO
CHK TB2U9, TB2U5, TB2U4 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102420-
102424
DECREASE ALT SIG INPUT TO +5.360 AND...
102428-
102432
...CHECK THAT AUDIO WARN SIG IS ON.
29
SH 23
28
CHK 1000 HZ SIG AT TB2U6-1(H), TB2U6-4(C).
50 MS ON, 600 MS OFF, NOM
1000 HZ SIG OK
NO
CHK TB2U4 AND CKT. REPAIR AS REQD.
YES
CHK 1000 HZ AUDIO OUTPUT ACROSS TB2C3
50 MS ON, 600 MS OFF, NOM
AUDIO OUTPUT OK
NO
CHK TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
YES
25
SH 20
1
SH 1

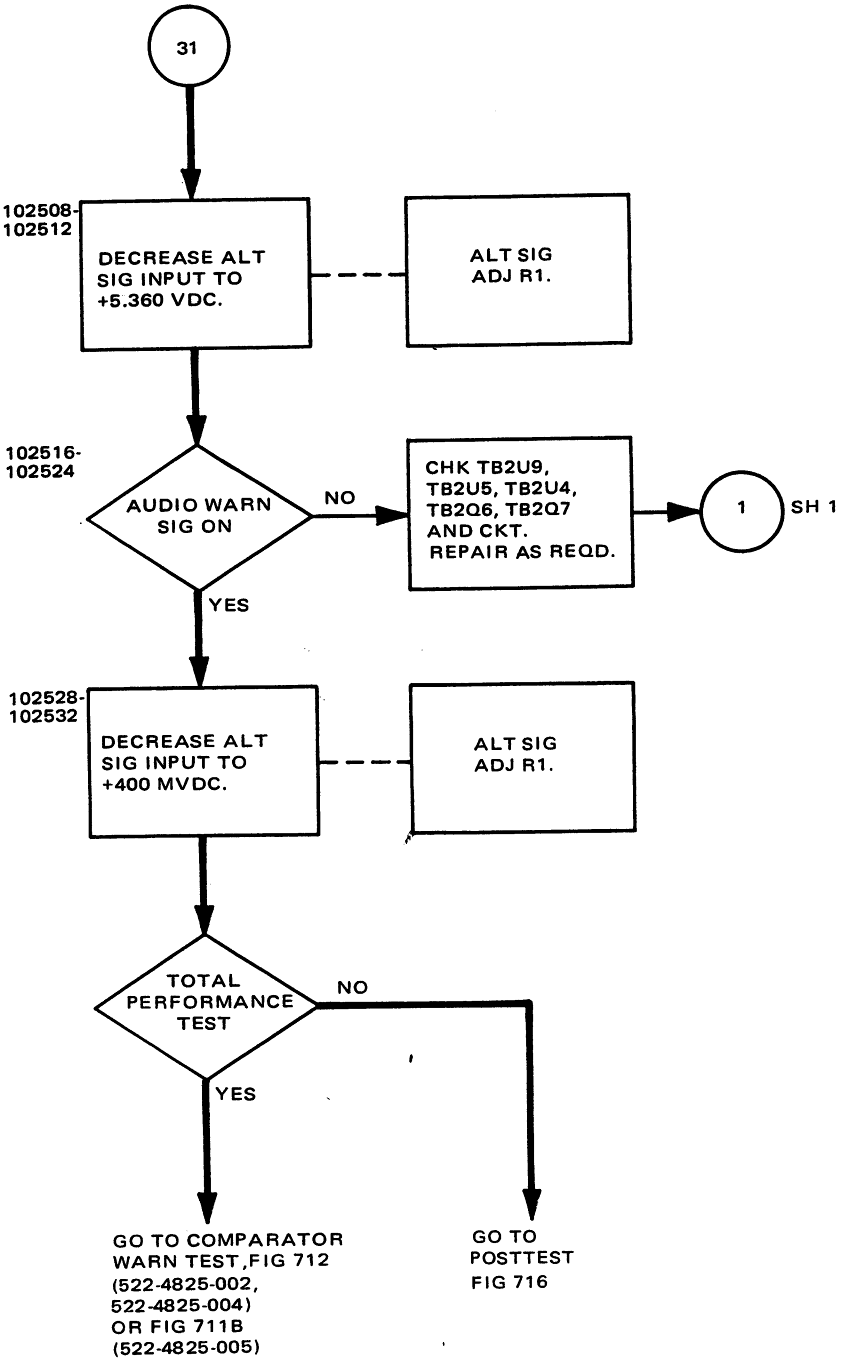
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 22 of 25)


29
102436-
102440
DECREASE ALT SIG INPUT TO +4.600 VDC AND...
102444-
102448
...AT SAME TIME CHECK AUDIO WARN SIGNAL.
AUDIO SIG TONE BURSTS INCREASE PROPORTIONAL TO ALT DECREASE.
102452
AUDIO SIG OK
NO
CHK TB2U9, TB2U5, TB2U4 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102456-
102460
DECREASE ALT SIG INPUT UNTIL UUT DH INDICATOR JUST LIGHTS.
ALT SIG ADJ R1.
102464
MEAS ALT SIG INPUT.
READ DVM.
30
SH 24

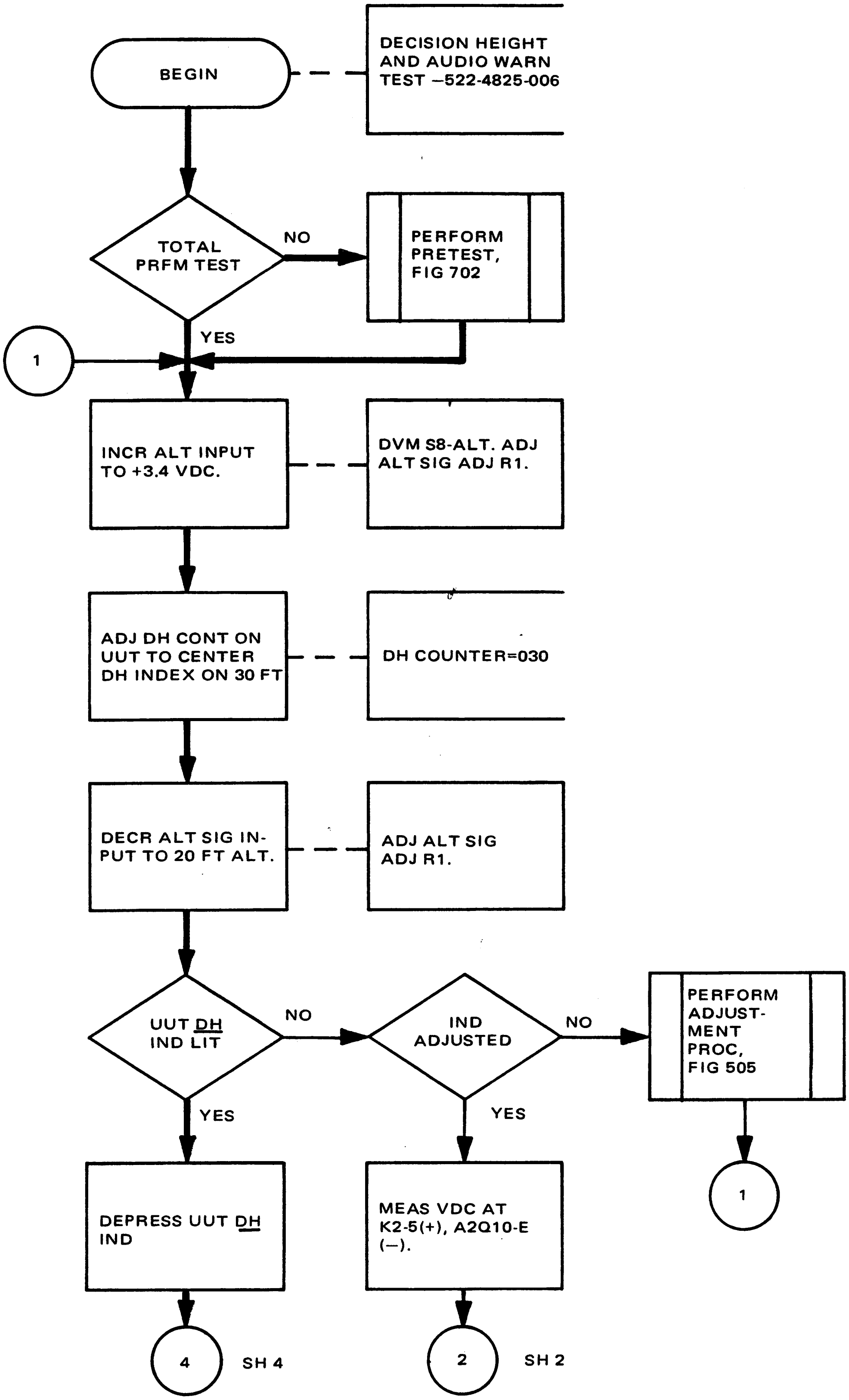
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 23 of 25)


30
+4.400 VDC NOM
102464-
102468
+4.360 TO +4.440 VDC
NO
CHK TB2U9, TB2U4, TB1Q3 AND CKT. REPAIR AS REQD.
YES
102472-
102480
AUDIO WARN SIG OFF
NO
CHK TB2U9, TB2U5, TB2U4, TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
YES
102484-
102488
INCREASE ALT SIG INPUT UNTIL UUT DH INDICATOR JUST GOES OFF.
ALT SIG ADJ R1.
102492
MEAS ALT SIG INPUT.
READ DVM.
102492-
102496
+4.600 TO +4.900 VDC
NO
CHK TB2U5 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102500-
102504
INCREASE ALT SIG INPUT TO +5.900 VDC.
ALT SIG ADJ R1.
31
SH 25

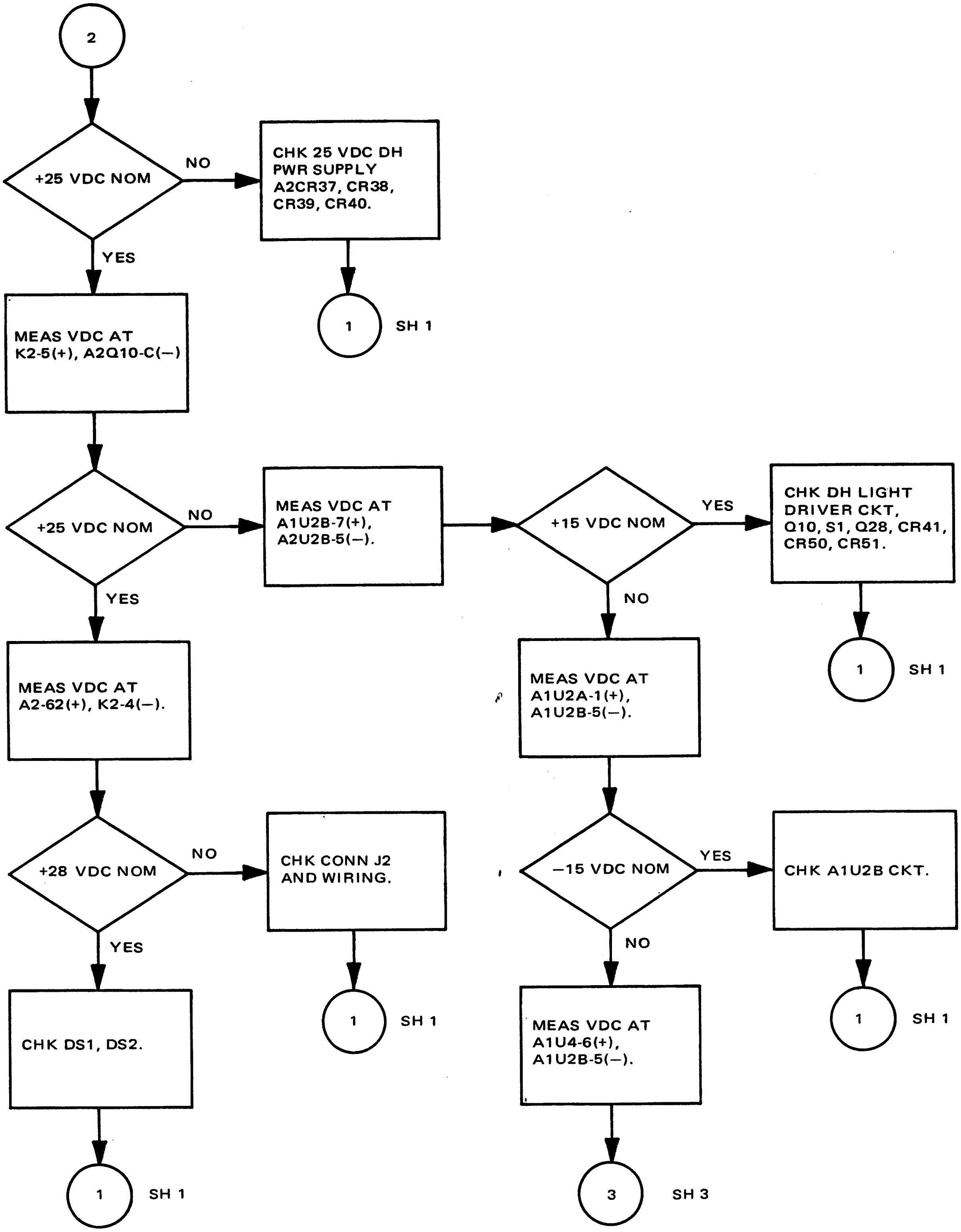
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 24 of 25)


31
102508-
102512
DECREASE ALT SIG INPUT TO +5.360 VDC.
ALT SIG ADJ R1.
102516-
102524
AUDIO WARN SIG ON
NO
CHK TB2U9, TB2U5, TB2U4, TB2Q6, TB2Q7 AND CKT. REPAIR AS REQD.
1
SH 1
YES
102528-
102532
DECREASE ALT SIG INPUT TO +400 MVDC.
ALT SIG ADJ R1.
TOTAL PERFORMANCE TEST
NO
YES
GO TO COMPARATOR WARN TEST,FIG 712 (522-4825-002, 522-4825-004) OR FIG 711B (522-4825-005)
GO TO POSTTEST FIG 716

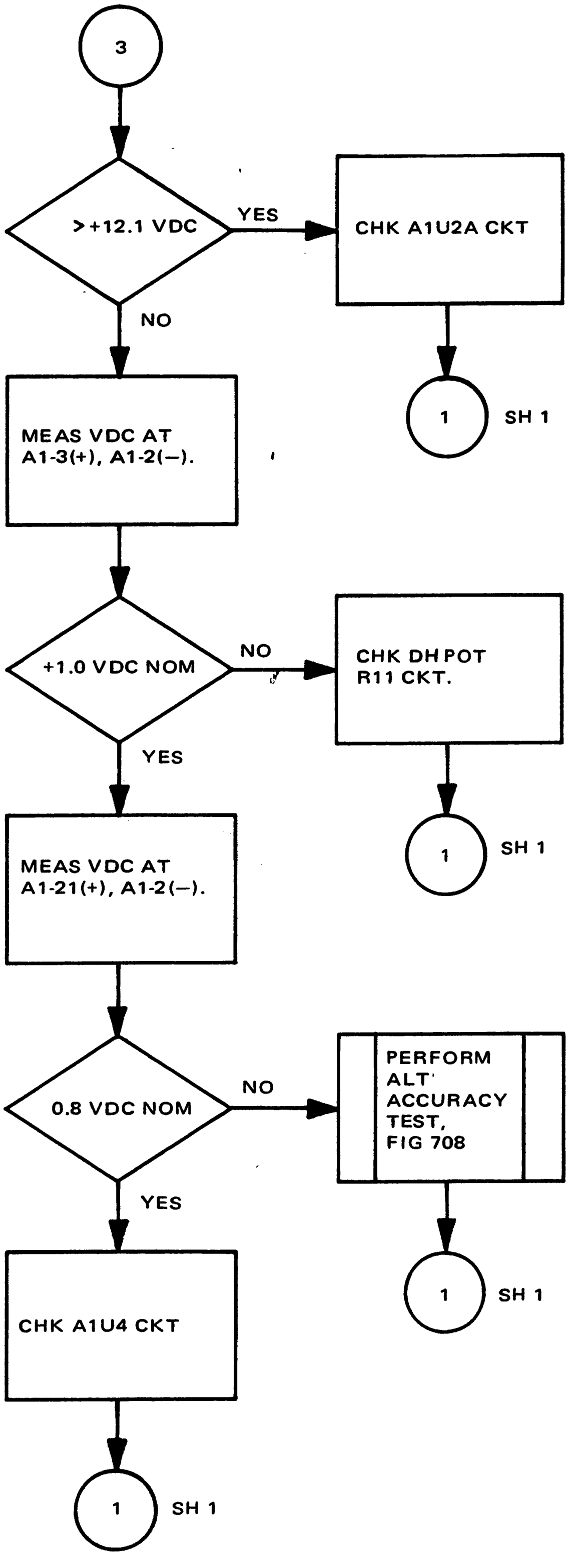
Decision Height and Audio Warn Test; CPN 522-4825-002, 522-4825-004, and 522-4825-005
Figure 711 (Sheet 25 of 25)


BEGIN
DECISION HEIGHT AND AUDIO WARN TEST –522-4825-006
TOTAL PRFM TEST
NO
PERFORM PRETEST, FIG 702
YES
1
INCR ALT INPUT TO +3.4 VDC.
DVM S8-ALT. ADJ ALT SIG ADJ R1.
ADJ DH CONT ON UUT TO CENTER DH INDEX ON 30 FT
DH COUNTER=030
DECR ALT SIG INPUT TO 20 FT ALT.
ADJ ALT SIG ADJ R1.
UUT DH IND LIT
NO
IND ADJUSTED
NO
PERFORM ADJUSTMENT PROC, FIG 505
YES
YES
DEPRESS UUT DH IND
MEAS VDC AT K2-5(+), A2Q10-E (–).
1
4
SH 4
2
SH 2

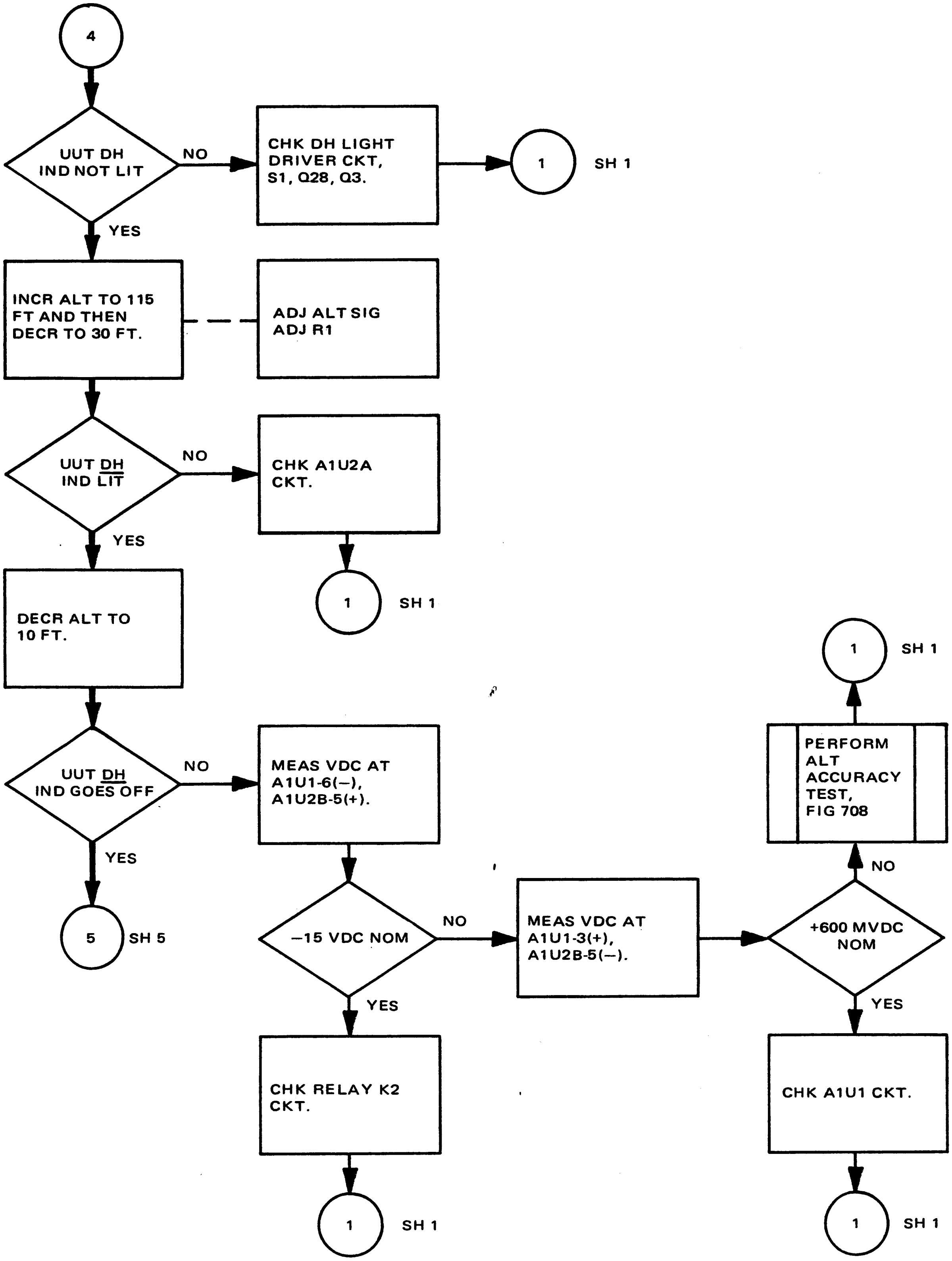
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 1 of 11)


2
+25 VDC NOM
NO
CHK 25 VDC DH PWR SUPPLY A2CR37, CR38, CR39, CR40.
YES
1
SH 1
MEAS VDC AT K2-5(+), A2Q10-C(−)
+25 VDC NOM
NO
MEAS VDC AT A1U2B-7(+), A2U2B-5(−).
+15 VDC NOM
YES
CHK DH LIGHT DRIVER CKT, Q10, S1, Q28, CR41, CR50, CR51.
1
SH 1
YES
NO
MEAS VDC AT A2-62(+), K2-4(−).
MEAS VDC AT A1U2A-1(+), A1U2B-5(−).
+28 VDC NOM
NO
CHK CONN J2 AND WIRING.
−15 VDC NOM
YES
CHK A1U2B CKT.
YES
NO
CHK DS1, DS2.
1
SH 1
MEAS VDC AT A1U4-6(+), A1U2B-5(−).
1
SH 1
1
SH 1
3
SH 3

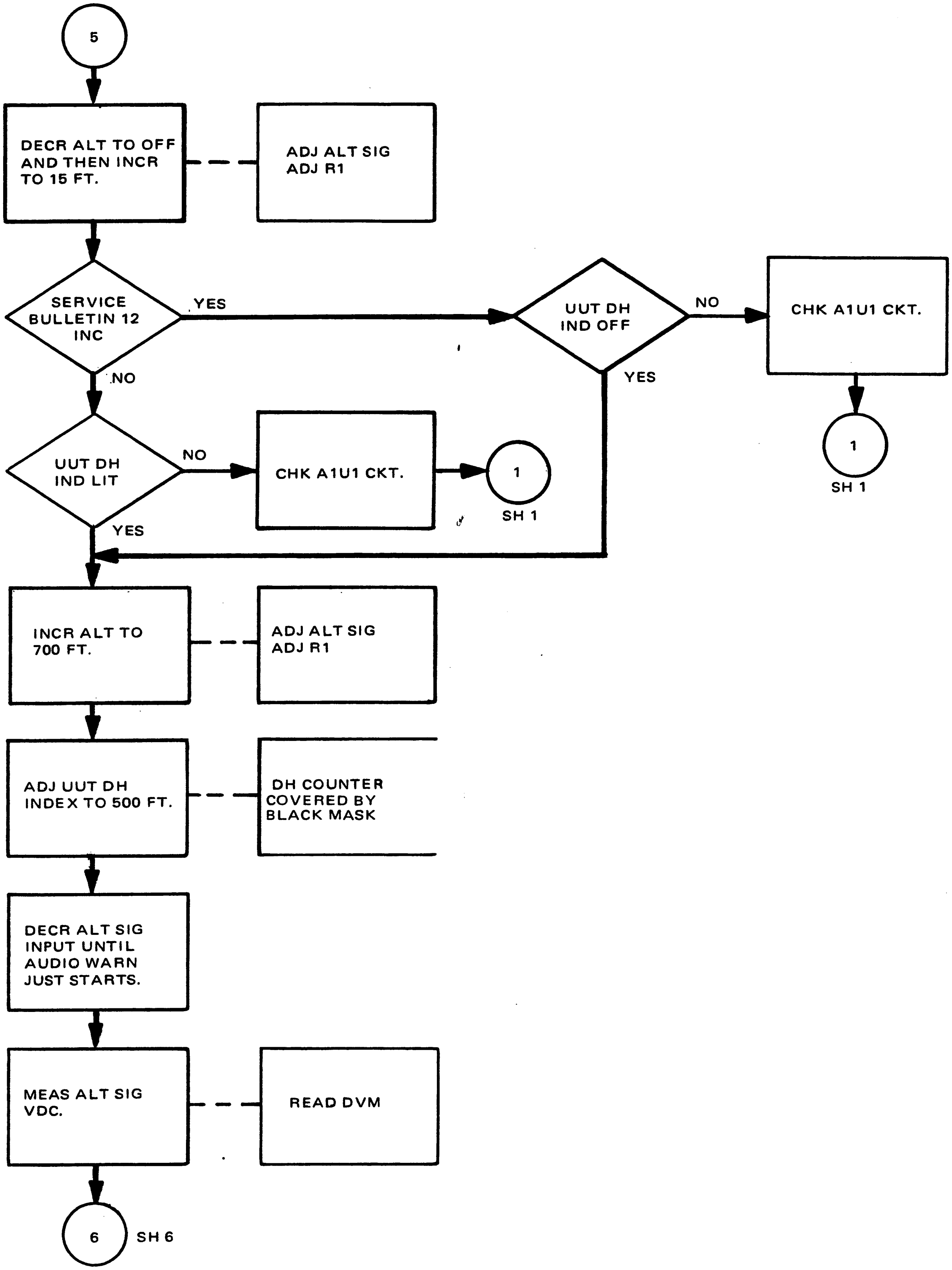
Decision Height and Audio Warn Test
CPN 522-4825-006
Figure 711A (Sheet 2 of 11)



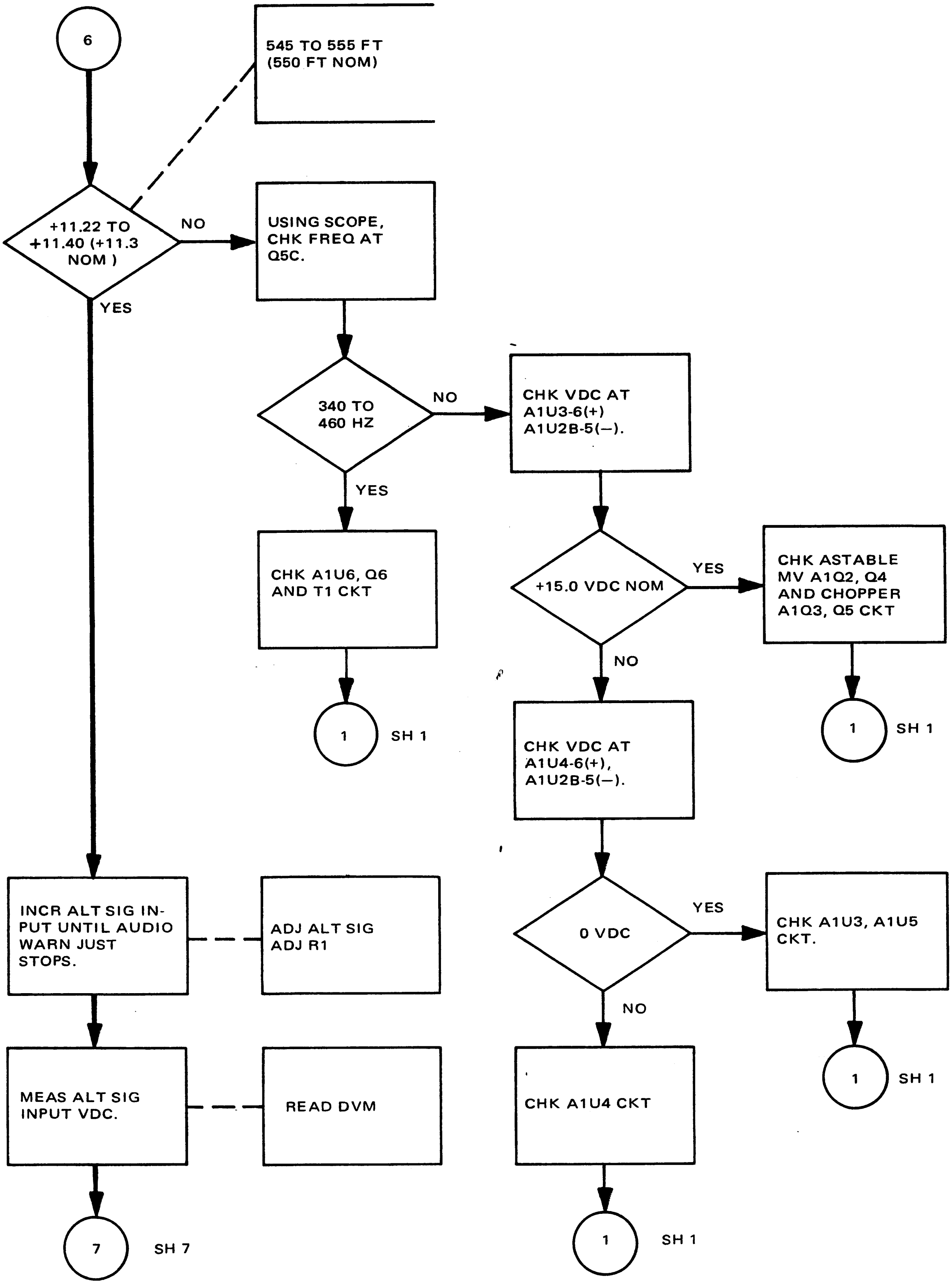
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 3 of 11)



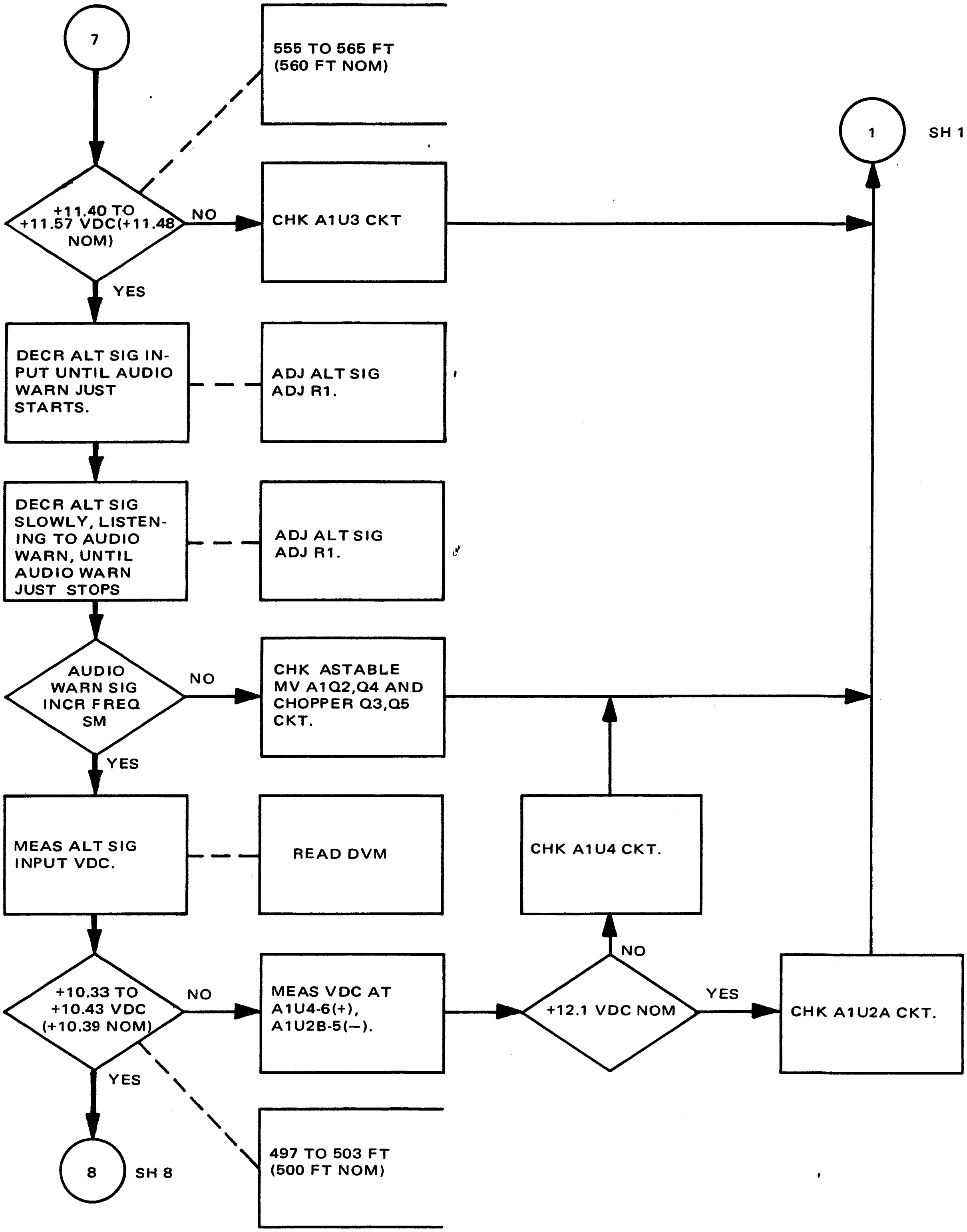
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 4 of 11)



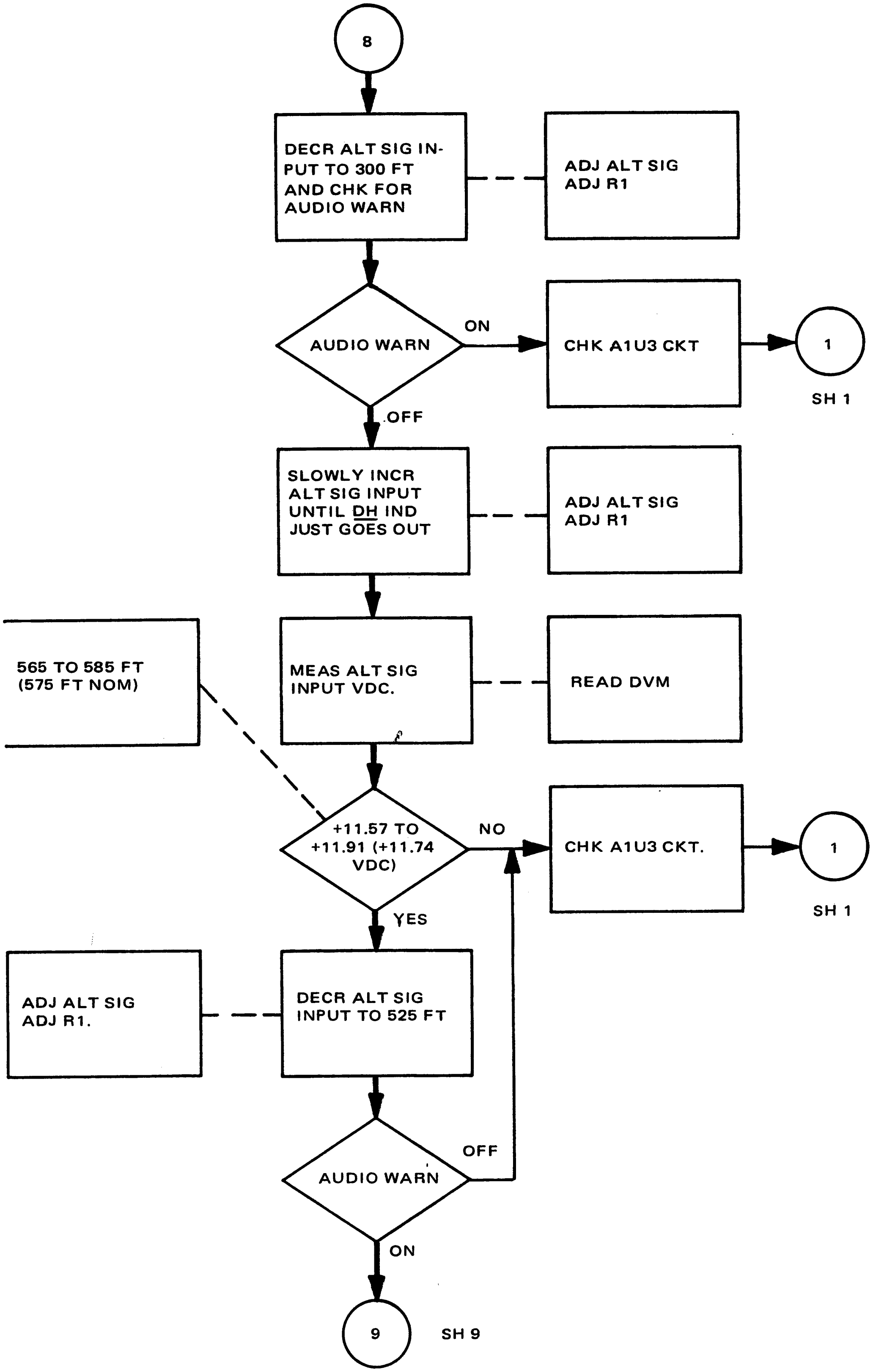
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 5)


6
545 TO 555 FT
(550 FT NOM)
+11.22 TO +11.40 (+11.3 NOM)
NO
YES
USING SCOPE, CHK FREQ AT Q5C.
340 TO 460 HZ
NO
YES
CHK VDC AT A1U3-6(+) A1U2B-5(—).
CHK A1U6, Q6 AND T1 CKT
1
SH 1
+15.0 VDC NOM
YES
NO
CHK ASTABLE MV A1Q2, Q4 AND CHOPPER A1Q3, Q5 CKT
1
SH 1
CHK VDC AT A1U4-6(+), A1U2B-5(—).
INCR ALT SIG INPUT UNTIL AUDIO WARN JUST STOPS.
ADJ ALT SIG ADJ R1
0 VDC
YES
NO
CHK A1U3, A1U5 CKT.
MEAS ALT SIG INPUT VDC.
READ DVM
CHK A1U4 CKT
1
SH 1
7
SH 7
1
SH 1

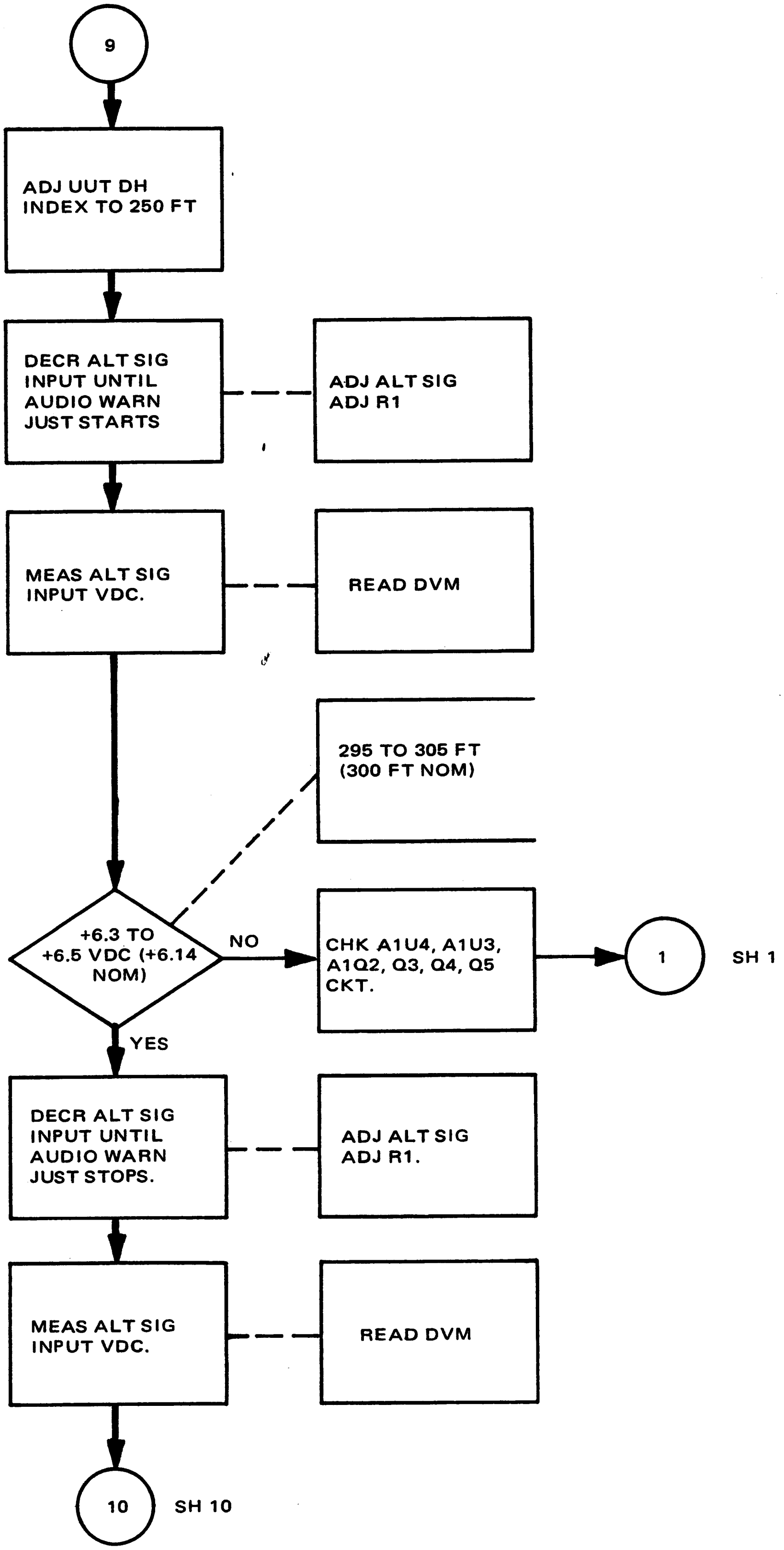
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 6)



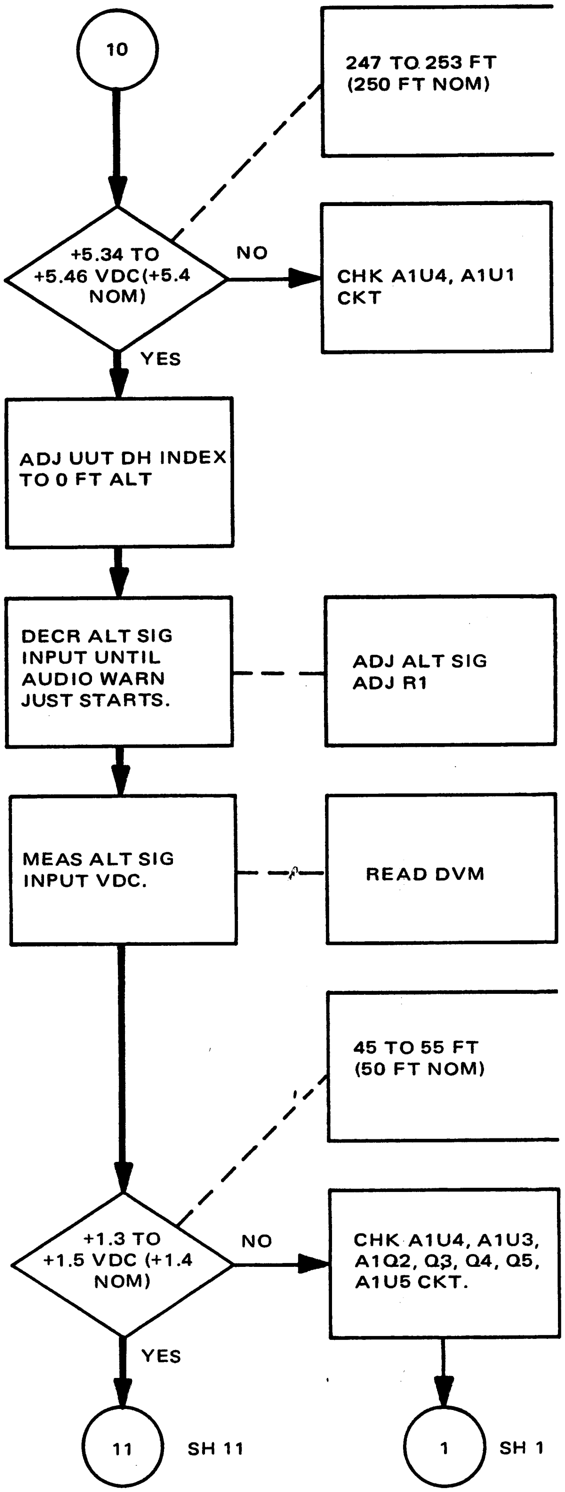
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 7)


8
DECR ALT SIG INPUT TO 300 FT AND CHK FOR AUDIO WARN
ADJ ALT SIG ADJ R1
AUDIO WARN
ON
CHK A1U3 CKT
1
SH 1
OFF
SLOWLY INCR ALT SIG INPUT UNTIL DH IND JUST GOES OUT
ADJ ALT SIG ADJ R1
565 TO 585 FT (575 FT NOM)
MEAS ALT SIG INPUT VDC.
READ DVM
+11.57 TO +11.91 (+11.74 VDC)
NO
CHK A1U3 CKT.
1
SH 1
YES
ADJ ALT SIG ADJ R1.
DECR ALT SIG INPUT TO 525 FT
AUDIO WARN
OFF
ON
9
SH 9

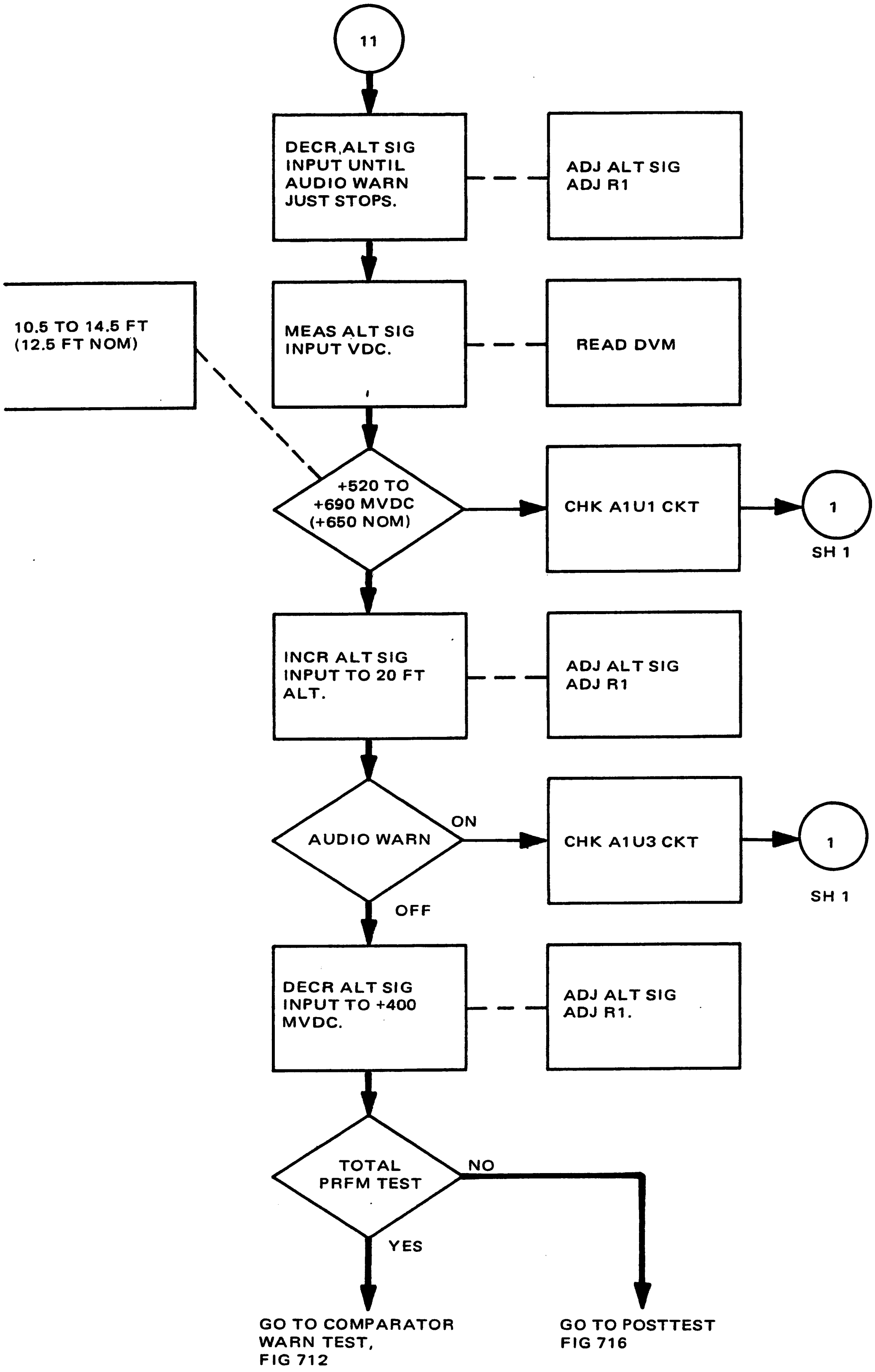
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 8 of 11)


9
ADJ UUT DH INDEX TO 250 FT
DECR ALT SIG INPUT UNTIL AUDIO WARN JUST STARTS
ADJ ALT SIG ADJ R1
MEAS ALT SIG INPUT VDC.
READ DVM
295 TO 305 FT (300 FT NOM)
+6.3 TO +6.5 VDC (+6.14 NOM)
NO
CHK A1U4, A1U3, A1Q2, Q3, Q4, Q5 CKT.
1
SH 1
YES
DECR ALT SIG INPUT UNTIL AUDIO WARN JUST STOPS.
ADJ ALT SIG ADJ R1.
MEAS ALT SIG INPUT VDC.
READ DVM
10
SH 10

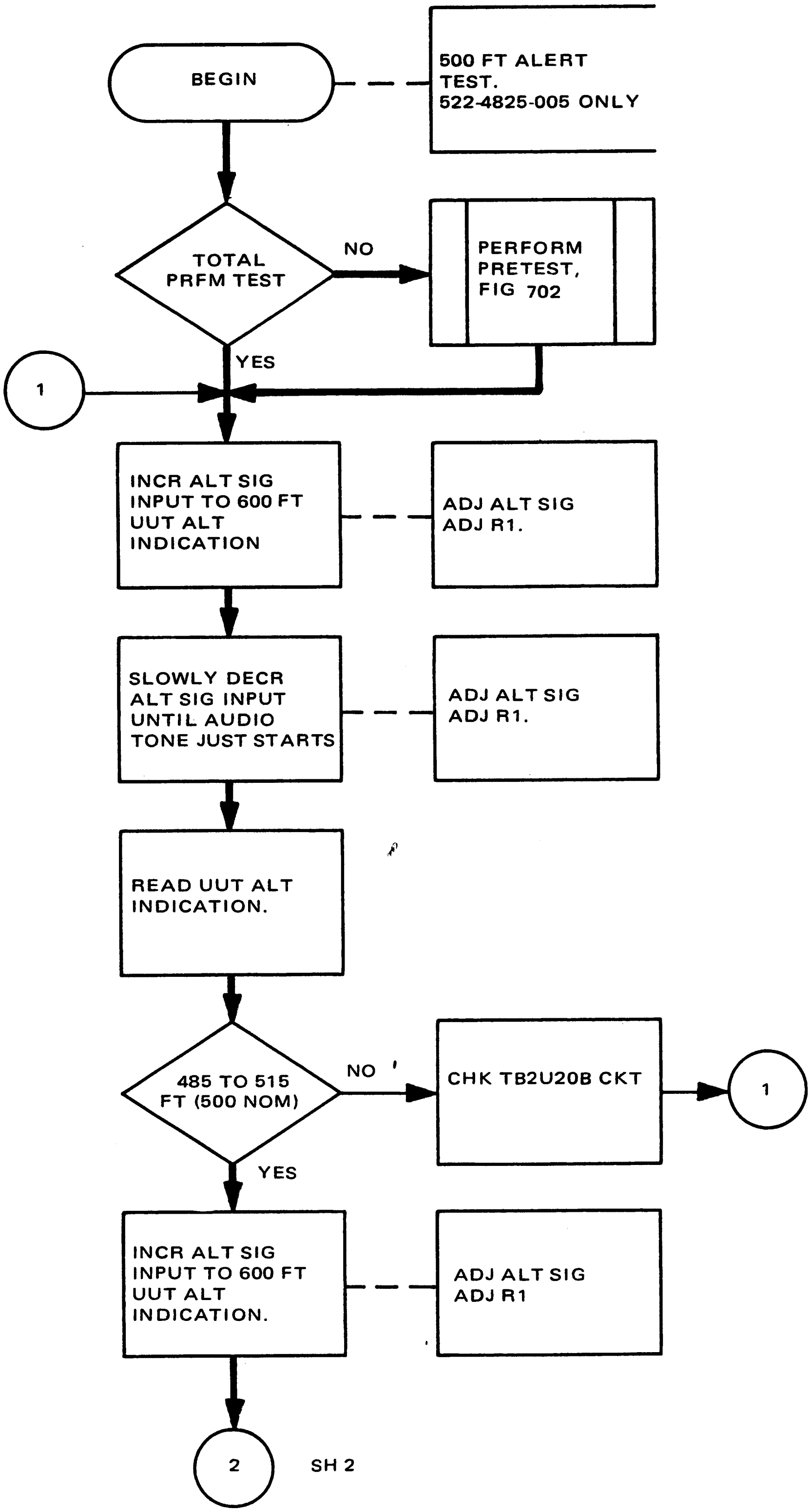
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 9 of 11)



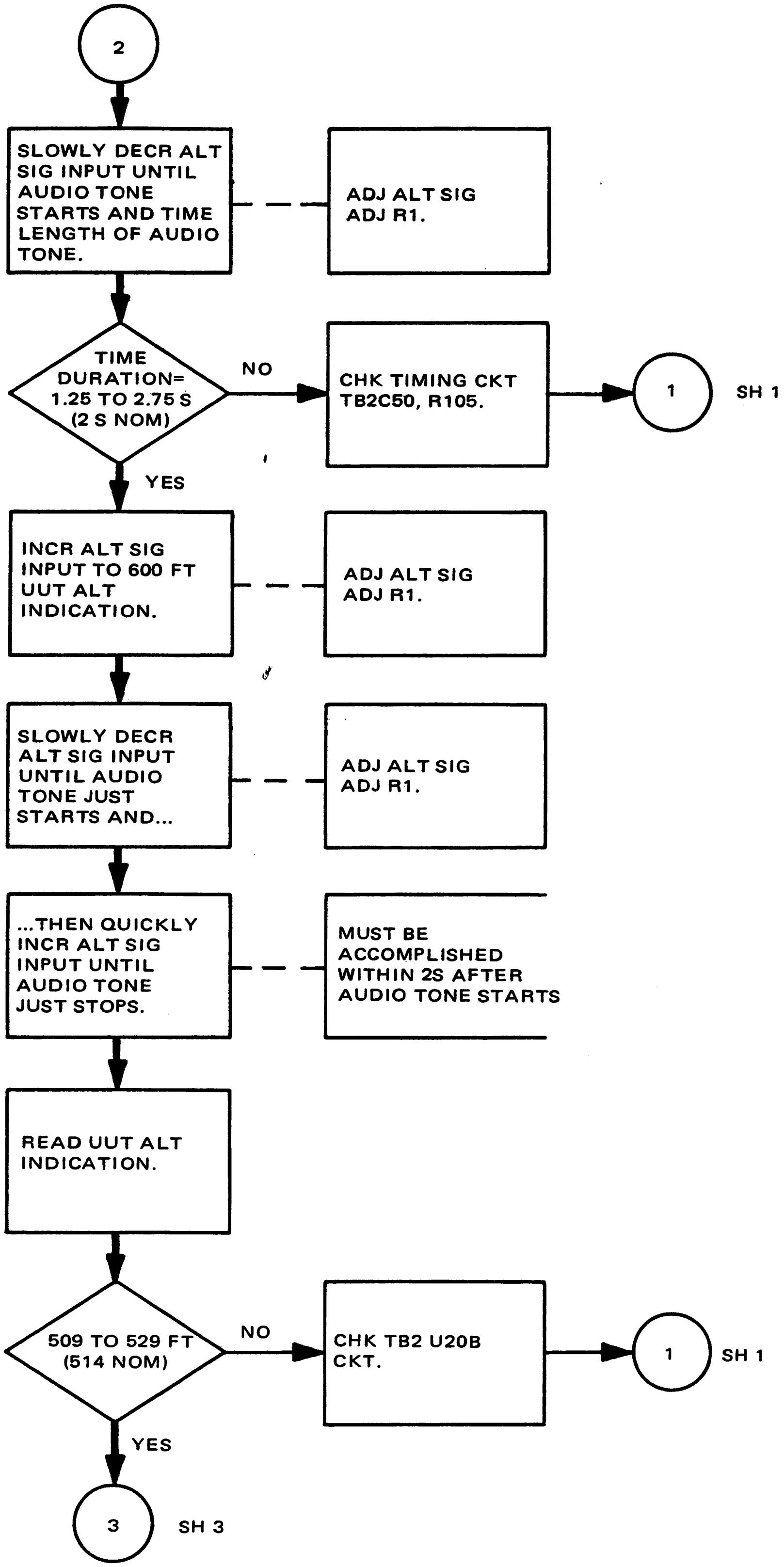
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 10 of 11)


11
DECR.ALT SIG INPUT UNTIL AUDIO WARN JUST STOPS.
ADJ ALT SIG ADJ R1
10.5 TO 14.5 FT (12.5 FT NOM)
MEAS ALT SIG INPUT VDC.
READ DVM
+520 TO +690 MVDC (+650 NOM)
CHK A1U1 CKT
1
SH 1
INCR ALT SIG INPUT TO 20 FT ALT.
ADJ ALT SIG ADJ R1
AUDIO WARN
ON
OFF
CHK A1U3 CKT
1
SH 1
DECR ALT SIG INPUT TO +400 MVDC.
ADJ ALT SIG ADJ R1.
TOTAL PRFM TEST
NO
YES
GO TO COMPARATOR WARN TEST, FIG 712
GO TO POSTTEST FIG 716

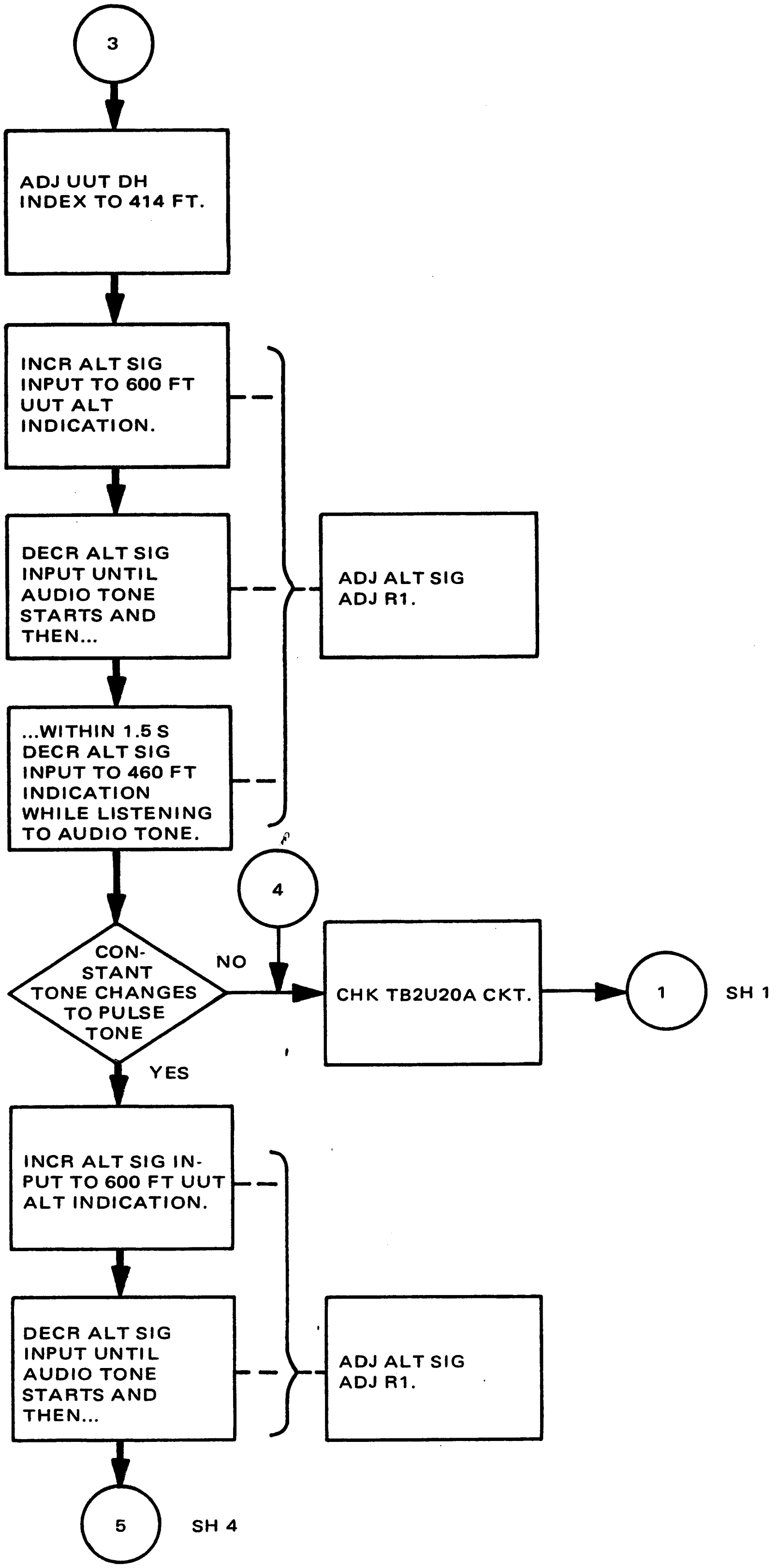
Decision Height and Audio Warn Test,
CPN 522-4825-006
Figure 711A (Sheet 11 of 11)


BEGIN
500 FT ALERT TEST. 522-4825-005 ONLY
TOTAL PRFM TEST
NO
PERFORM PRETEST, FIG 702
YES
1
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION
ADJ ALT SIG ADJ R1.
SLOWLY DECR ALT SIG INPUT UNTIL AUDIO TONE JUST STARTS
ADJ ALT SIG ADJ R1.
READ UUT ALT INDICATION.
485 TO 515 FT (500 NOM)
NO
CHK TB2U20B CKT
1
YES
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION.
ADJ ALT SIG ADJ R1
2
SH 2

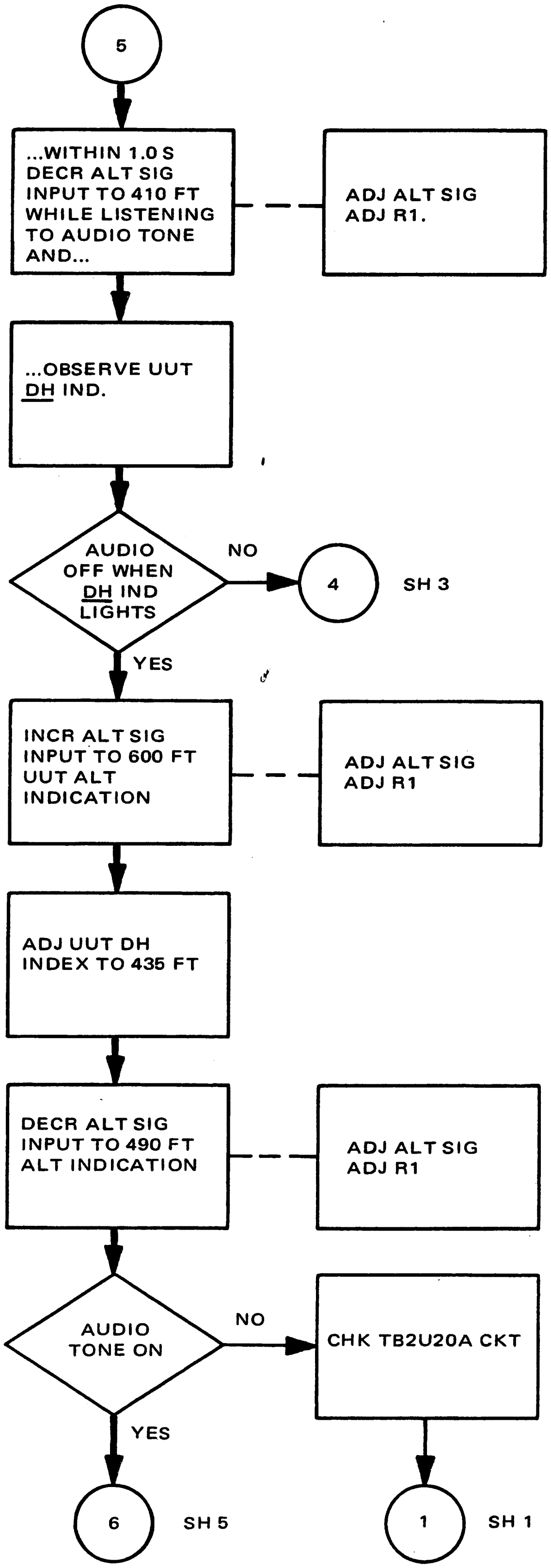
500-Foot Alert Test, CPN 522-4825-005
Figure 711B (Sheet 1 of 5)


2
SLOWLY DECR ALT SIG INPUT UNTIL AUDIO TONE STARTS AND TIME LENGTH OF AUDIO TONE.
ADJ ALT SIG ADJ R1.
TIME DURATION= 1.25 TO 2.75 S (2 S NOM)
NO
CHK TIMING CKT TB2C50, R105.
1
SH 1
YES
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION.
ADJ ALT SIG ADJ R1.
SLOWLY DECR ALT SIG INPUT UNTIL AUDIO TONE JUST STARTS AND...
ADJ ALT SIG ADJ R1.
...THEN QUICKLY INCR ALT SIG INPUT UNTIL AUDIO TONE JUST STOPS.
MUST BE ACCOMPLISHED WITHIN 2S AFTER AUDIO TONE STARTS
READ UUT ALT INDICATION.
509 TO 529 FT (514 NOM)
NO
CHK TB2 U20B CKT.
1
SH 1
YES
3
SH 3

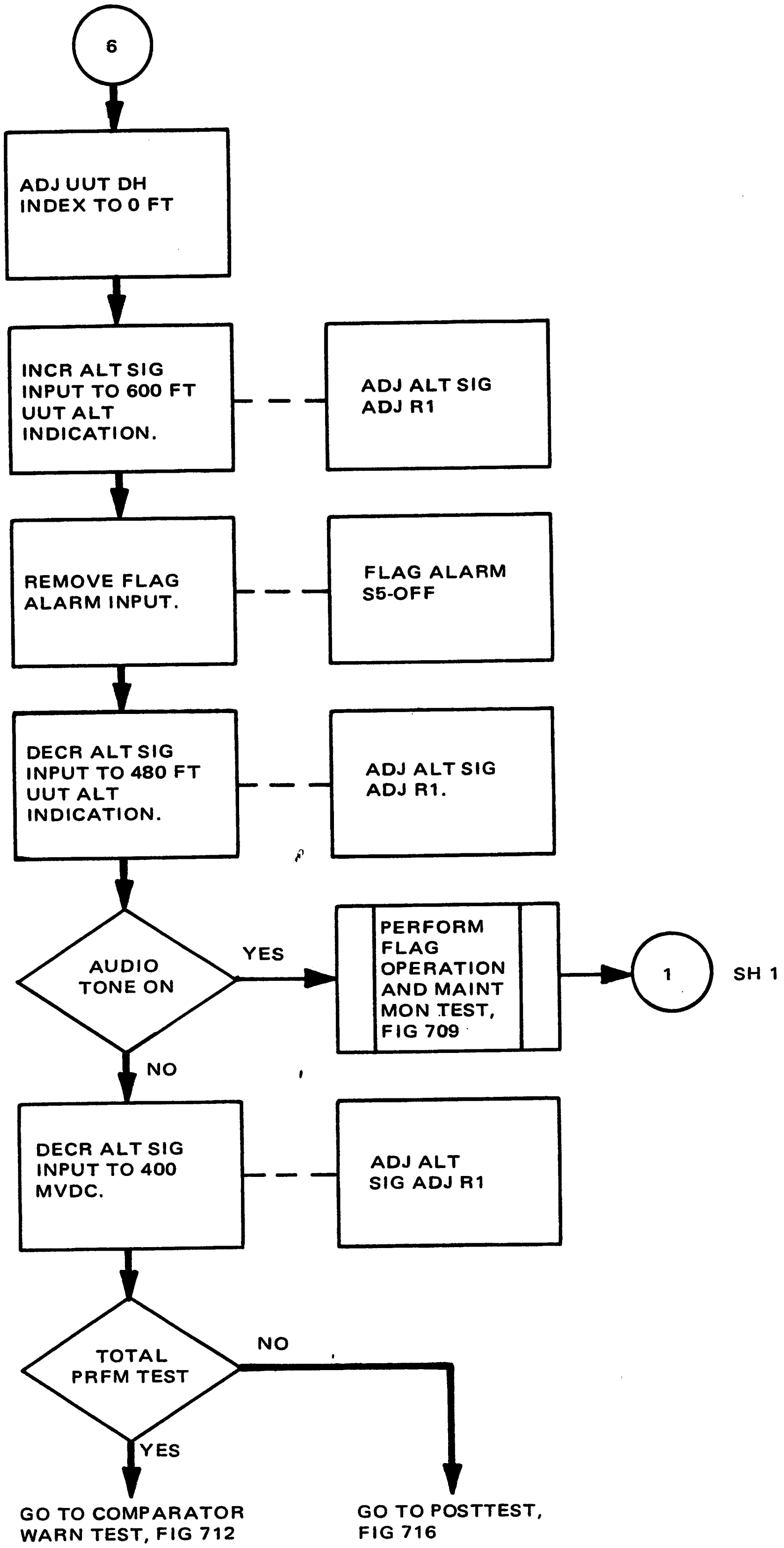
500-Foot Alert Test, CPN 522-4825-005
Figure 711B (Sheet 2 of 5)


3
ADJ UUT DH INDEX TO 414 FT.
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION.
DECR ALT SIG INPUT UNTIL AUDIO TONE STARTS AND THEN...
ADJ ALT SIG ADJ R1.
...WITHIN 1.5 S DECR ALT SIG INPUT TO 460 FT INDICATION WHILE LISTENING TO AUDIO TONE.
4
CON-STANT TONE CHANGES TO PULSE TONE
NO
CHK TB2U20A CKT.
1
SH 1
YES
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION.
DECR ALT SIG INPUT UNTIL AUDIO TONE STARTS AND THEN...
ADJ ALT SIG ADJ R1.
5
SH 4

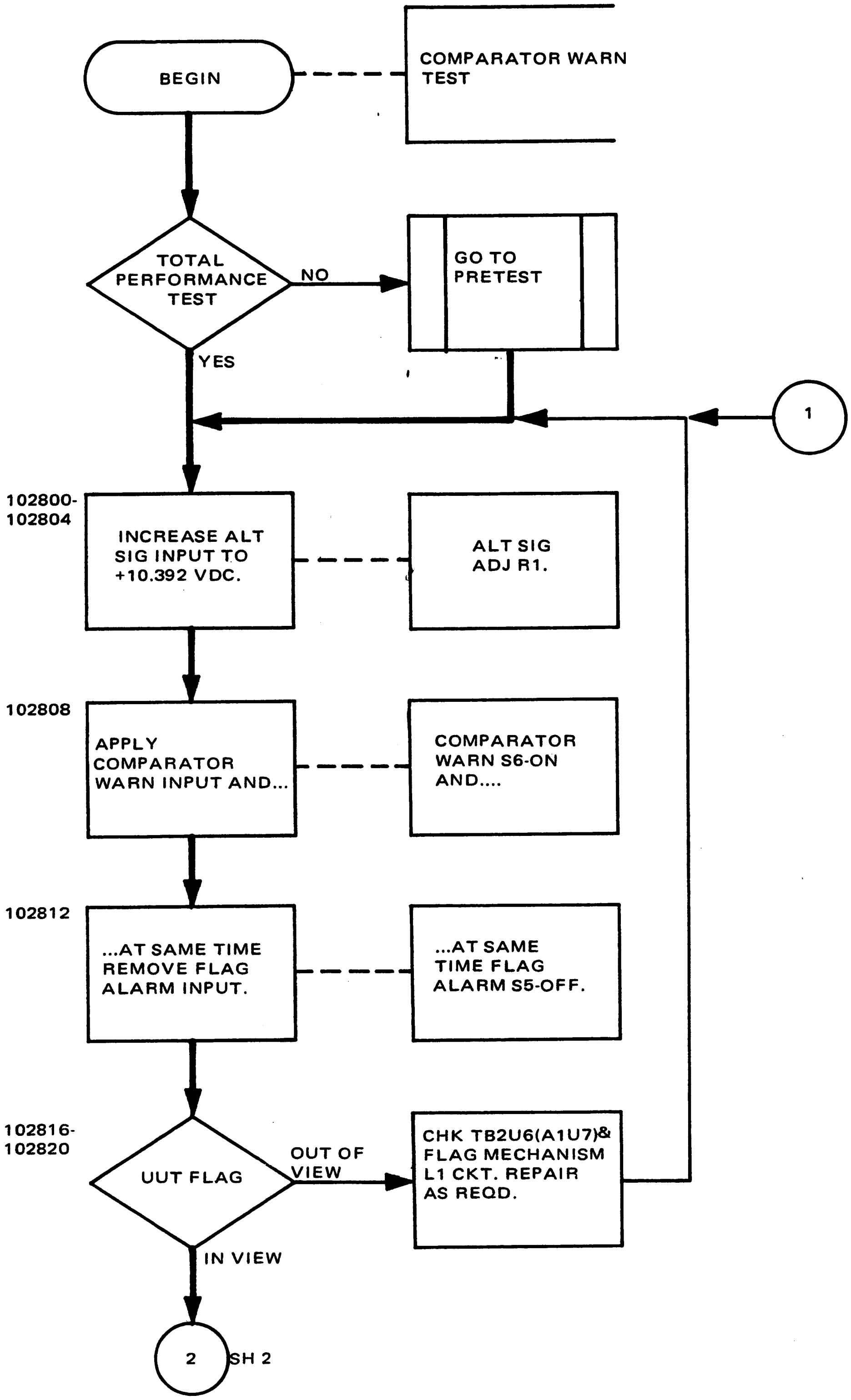
500-Foot Alert Test, CPN 522-4825-005
Figure 711B (Sheet 3 of 5)


5
...WITHIN 1.0 S DECR ALT SIG INPUT TO 410 FT WHILE LISTENING TO AUDIO TONE AND...
ADJ ALT SIG ADJ R1.
...OBSERVE UUT DH IND.
AUDIO OFF WHEN DH IND LIGHTS
NO
4
SH 3
YES
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION
ADJ ALT SIG ADJ R1
ADJ UUT DH INDEX TO 435 FT
DECR ALT SIG INPUT TO 490 FT ALT INDICATION
ADJ ALT SIG ADJ R1
AUDIO TONE ON
NO
CHK TB2U20A CKT
YES
6
SH 5
1
SH 1

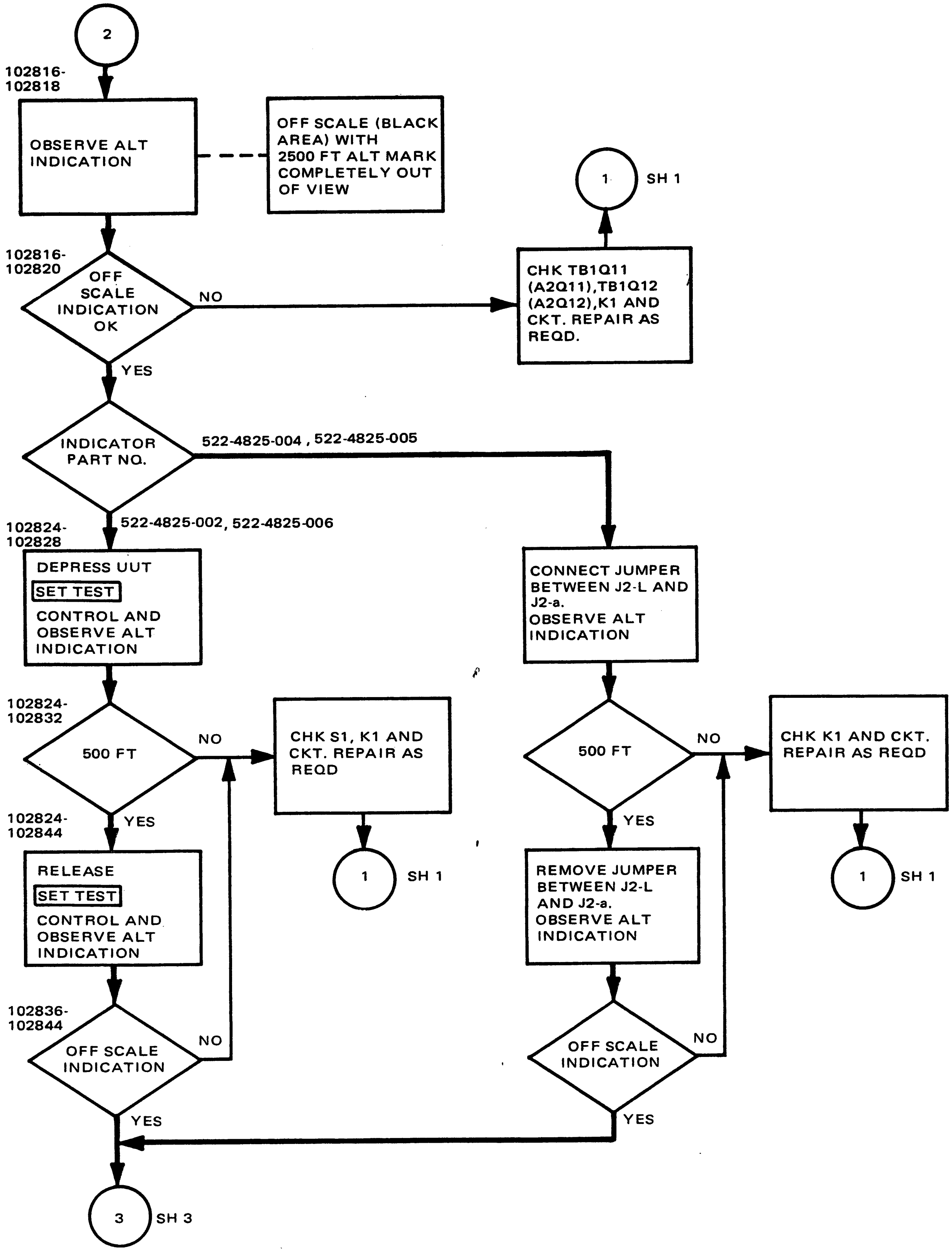
500-Foot Alert Test, CPN 522-4825-005
Figure 711B (Sheet 4 of 5)


6
ADJ UUT DH INDEX TO 0 FT
INCR ALT SIG INPUT TO 600 FT UUT ALT INDICATION.
ADJ ALT SIG ADJ R1
REMOVE FLAG ALARM INPUT.
FLAG ALARM S5-OFF
DECR ALT SIG INPUT TO 480 FT UUT ALT INDICATION.
ADJ ALT SIG ADJ R1.
AUDIO TONE ON
YES
PERFORM FLAG OPERATION AND MAINT MON TEST, FIG 709
1
SH 1
NO
DECR ALT SIG INPUT TO 400 MVDC.
ADJ ALT SIG ADJ R1
TOTAL PRFM TEST
NO
YES
GO TO COMPARATOR WARN TEST, FIG 712
GO TO POSTTEST, FIG 716

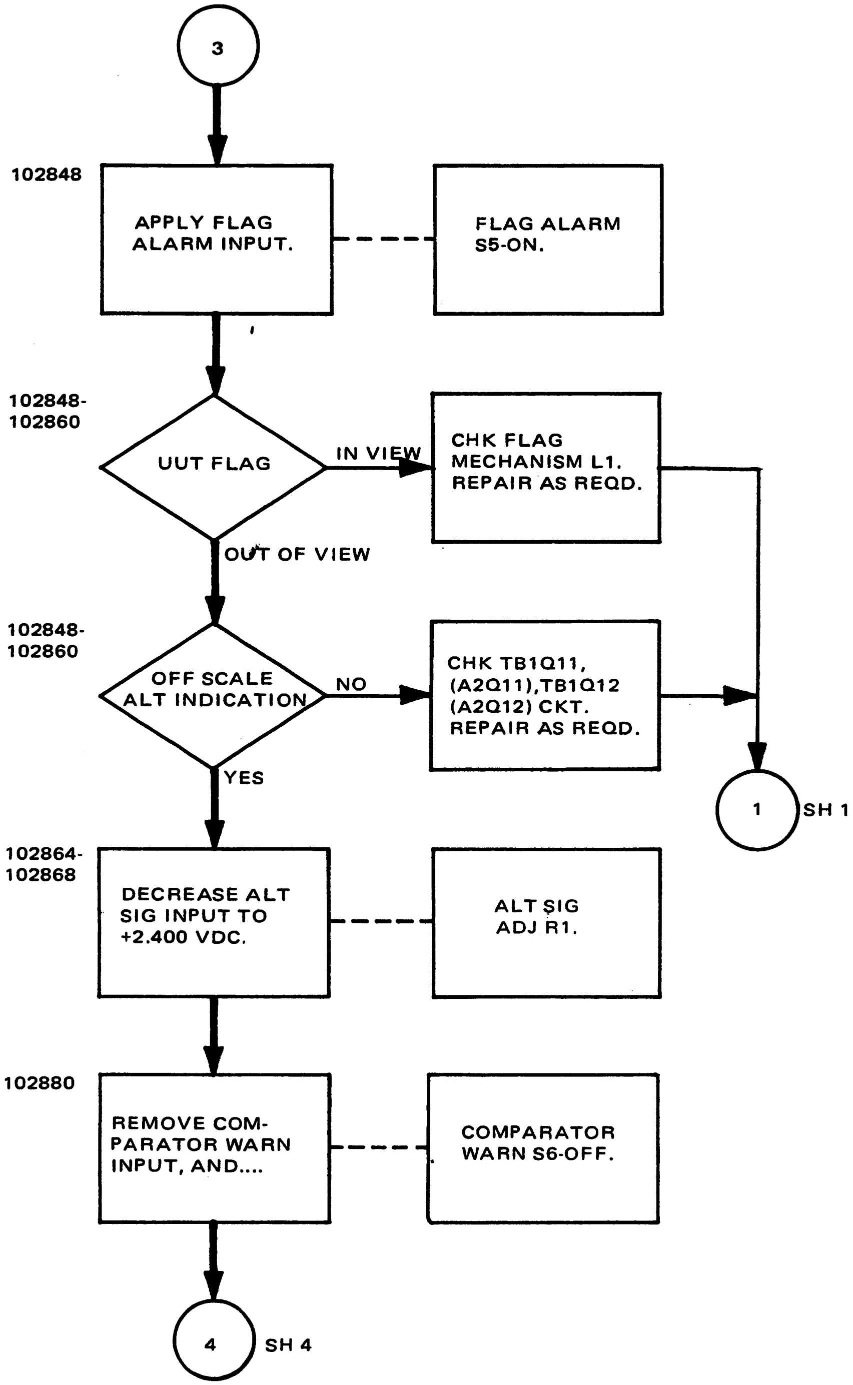
500-Foot Alert Test, CPN 522-4825-005
Figure 711B (Sheet 5 of 5)


BEGIN
COMPARATOR WARN TEST
TOTAL PERFORMANCE TEST
NO
GO TO PRETEST
YES
1
102800-102804
INCREASE ALT SIG INPUT TO +10.392 VDC.
ALT SIG ADJ R1.
102808
APPLY COMPARATOR WARN INPUT AND...
COMPARATOR WARN S6-ON AND....
102812
...AT SAME TIME REMOVE FLAG ALARM INPUT.
...AT SAME TIME FLAG ALARM S5-OFF.
102816-102820
UUT FLAG
OUT OF VIEW
CHK TB2U6(A1U7)& FLAG MECHANISM L1 CKT. REPAIR AS REQD.
IN VIEW
2
SH 2

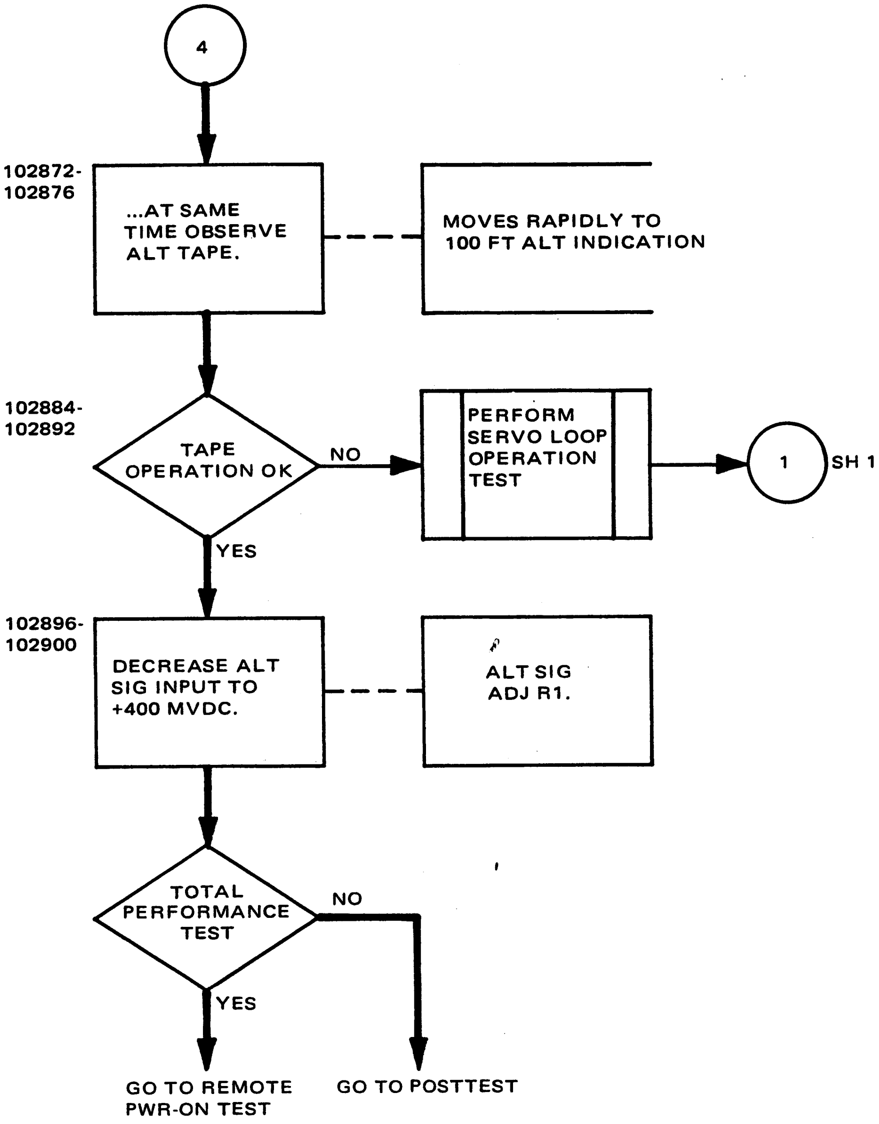
Comparator Warn Test
Figure 712 (Sheet 1 of 4)


2
102816-
102818
OBSERVE ALT INDICATION
OFF SCALE (BLACK AREA) WITH 2500 FT ALT MARK COMPLETELY OUT OF VIEW
1
SH 1
102816-
102820
OFF SCALE INDICATION OK
NO
CHK TB1Q11 (A2Q11),TB1Q12 (A2Q12),K1 AND CKT. REPAIR AS REQD.
YES
INDICATOR PART NO.
522-4825-004 , 522-4825-005
102824-
102828
522-4825-002, 522-4825-006
DEPRESS UUT SET TEST CONTROL AND OBSERVE ALT INDICATION
CONNECT JUMPER BETWEEN J2-L AND J2-a. OBSERVE ALT INDICATION
102824-
102832
500 FT
NO
CHK S1, K1 AND CKT. REPAIR AS REQD
500 FT
NO
CHK K1 AND CKT. REPAIR AS REQD
102824-
102844
YES
YES
RELEASE SET TEST CONTROL AND OBSERVE ALT INDICATION
1
SH 1
REMOVE JUMPER BETWEEN J2-L AND J2-a. OBSERVE ALT INDICATION
1
SH 1
102836-
102844
OFF SCALE INDICATION
NO
OFF SCALE INDICATION
NO
YES
YES
3
SH 3

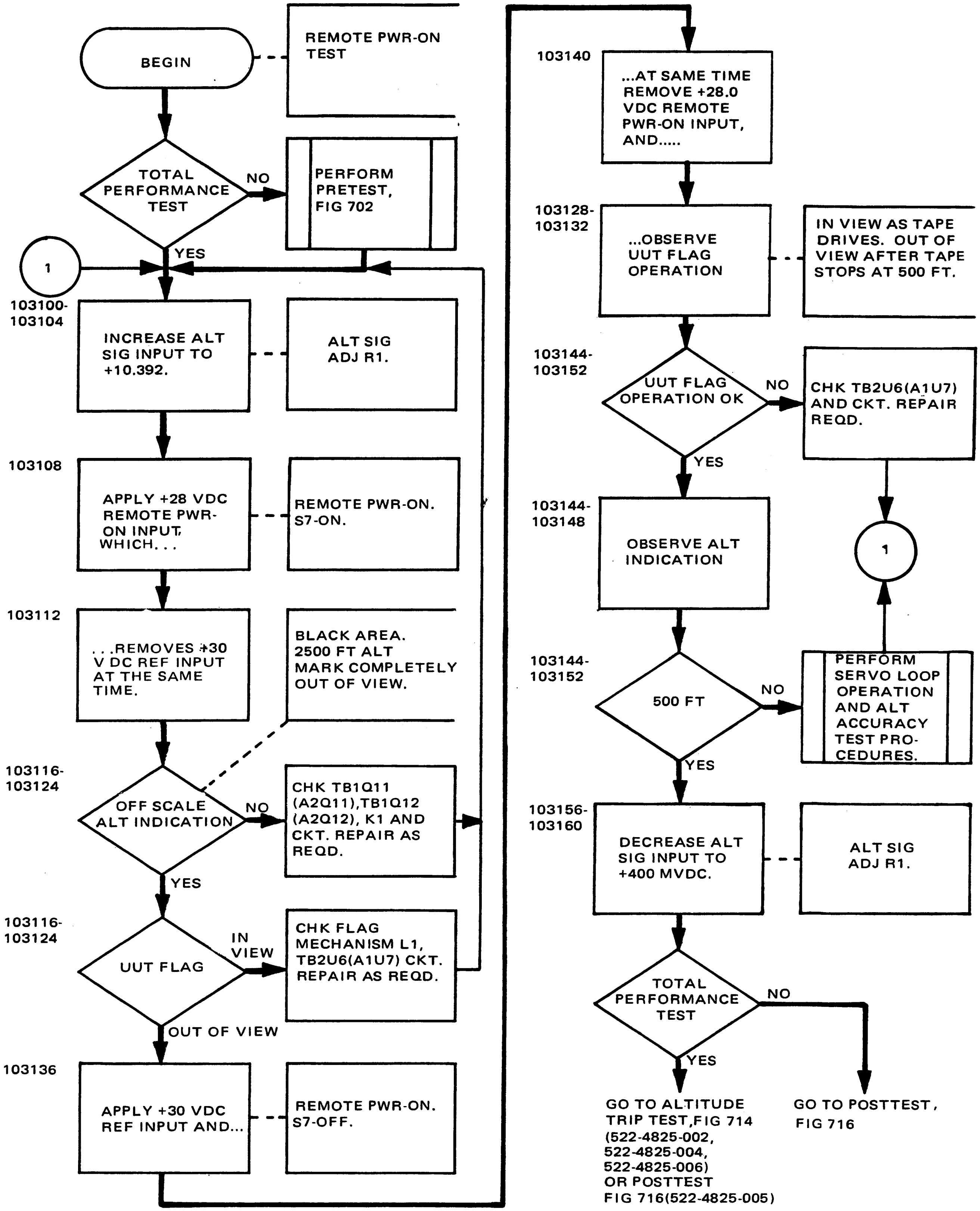
Comparator Warn Test
Figure 712 (Sheet 2 of 4)



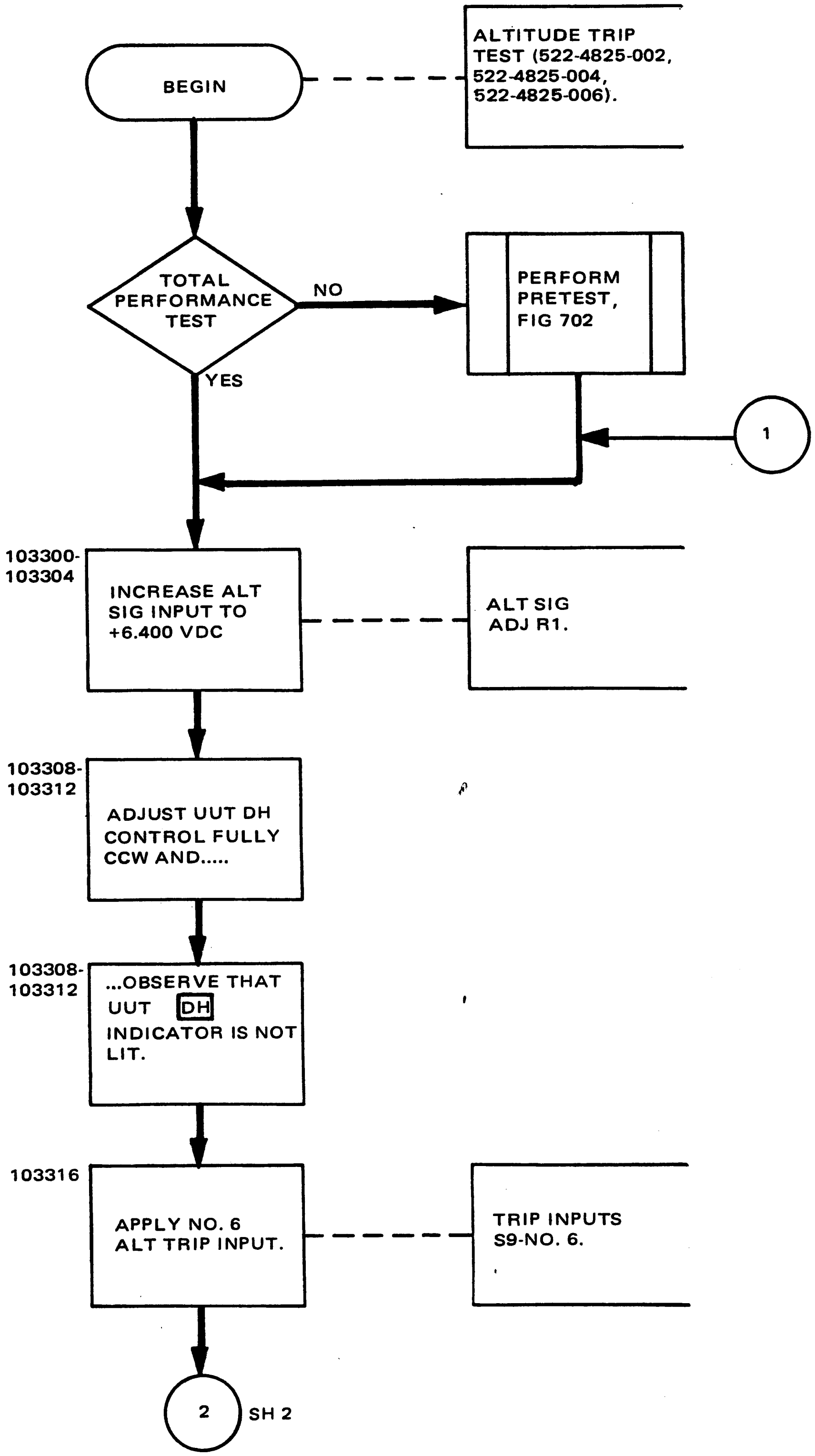
Comparator Warn Test
Figure 712 (Sheet 3 of 4)



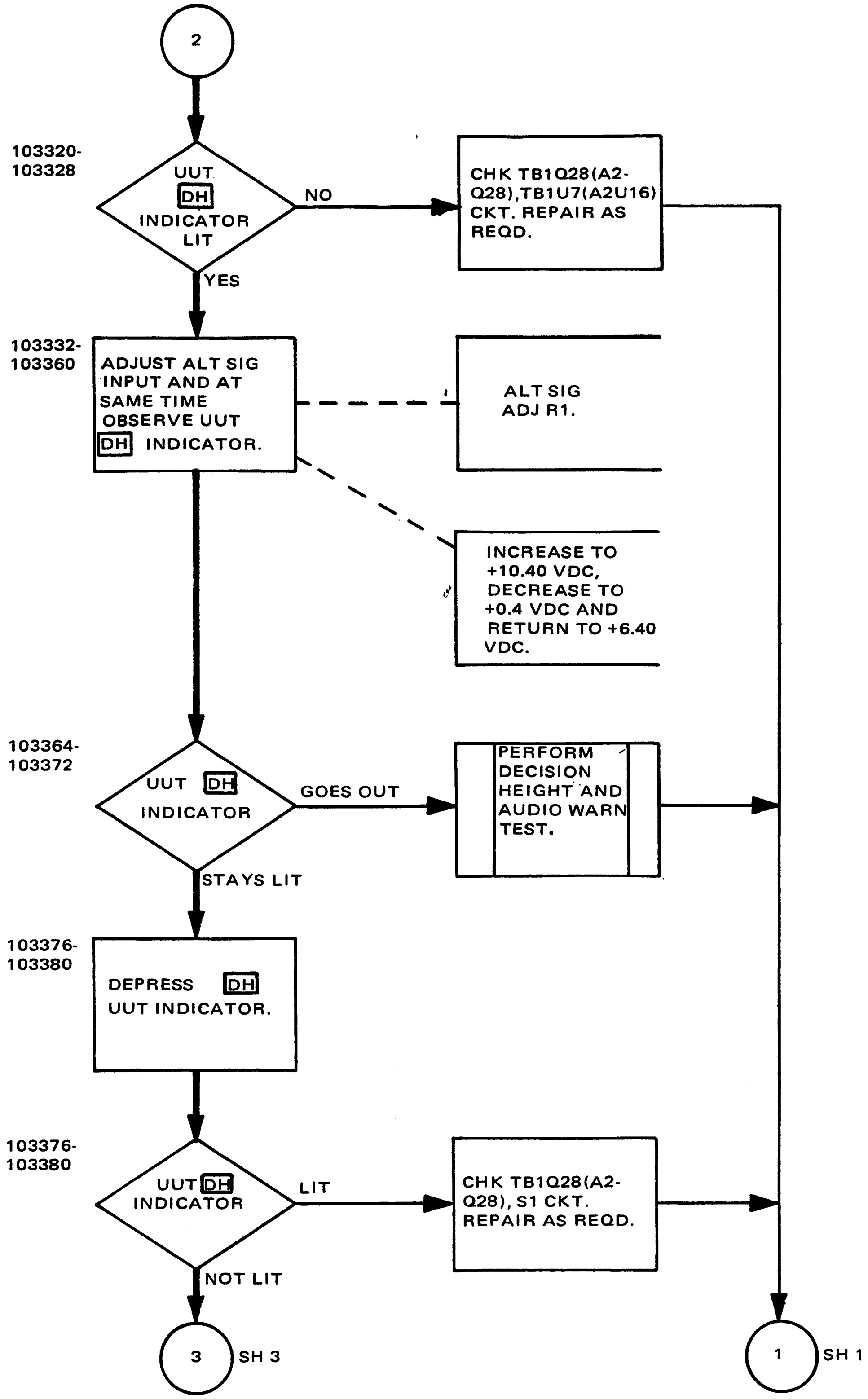
Comparator Warn Test
Figure 712 (Sheet 4 of 4)


BEGIN
REMOTE PWR-ON TEST
TOTAL PERFORMANCE TEST
NO
PERFORM PRETEST, FIG 702
YES
1
103100-103104
INCREASE ALT SIG INPUT TO +10.392.
ALT SIG ADJ R1.
103108
APPLY +28 VDC REMOTE PWR-ON INPUT, WHICH. . .
REMOTE PWR-ON. S7-ON.
103112
. . .REMOVES +30 V DC REF INPUT AT THE SAME TIME.
BLACK AREA. 2500 FT ALT MARK COMPLETELY OUT OF VIEW.
103116-103124
OFF SCALE ALT INDICATION
NO
CHK TB1Q11 (A2Q11),TB1Q12 (A2Q12), K1 AND CKT. REPAIR AS REQD.
YES
103116-103124
UUT FLAG
IN VIEW
CHK FLAG MECHANISM L1, TB2U6(A1U7) CKT. REPAIR AS REQD.
OUT OF VIEW
103136
APPLY +30 VDC REF INPUT AND...
REMOTE PWR-ON. S7-OFF.
103140
...AT SAME TIME REMOVE +28.0 VDC REMOTE PWR-ON INPUT, AND.....
103128-103132
...OBSERVE UUT FLAG OPERATION
IN VIEW AS TAPE DRIVES. OUT OF VIEW AFTER TAPE STOPS AT 500 FT.
103144-103152
UUT FLAG OPERATION OK
NO
CHK TB2U6(A1U7) AND CKT. REPAIR REQD.
YES
103144-103148
OBSERVE ALT INDICATION
1
103144-103152
500 FT
NO
PERFORM SERVO LOOP OPERATION AND ALT ACCURACY TEST PRO-CEDURES.
YES
103156-103160
DECREASE ALT SIG INPUT TO +400 MVDC.
ALT SIG ADJ R1.
TOTAL PERFORMANCE TEST
NO
YES
GO TO ALTITUDE TRIP TEST,FIG 714 (522-4825-002, 522-4825-004, 522-4825-006) OR POSTTEST FIG 716(522-4825-005)
GO TO POSTTEST, FIG 716

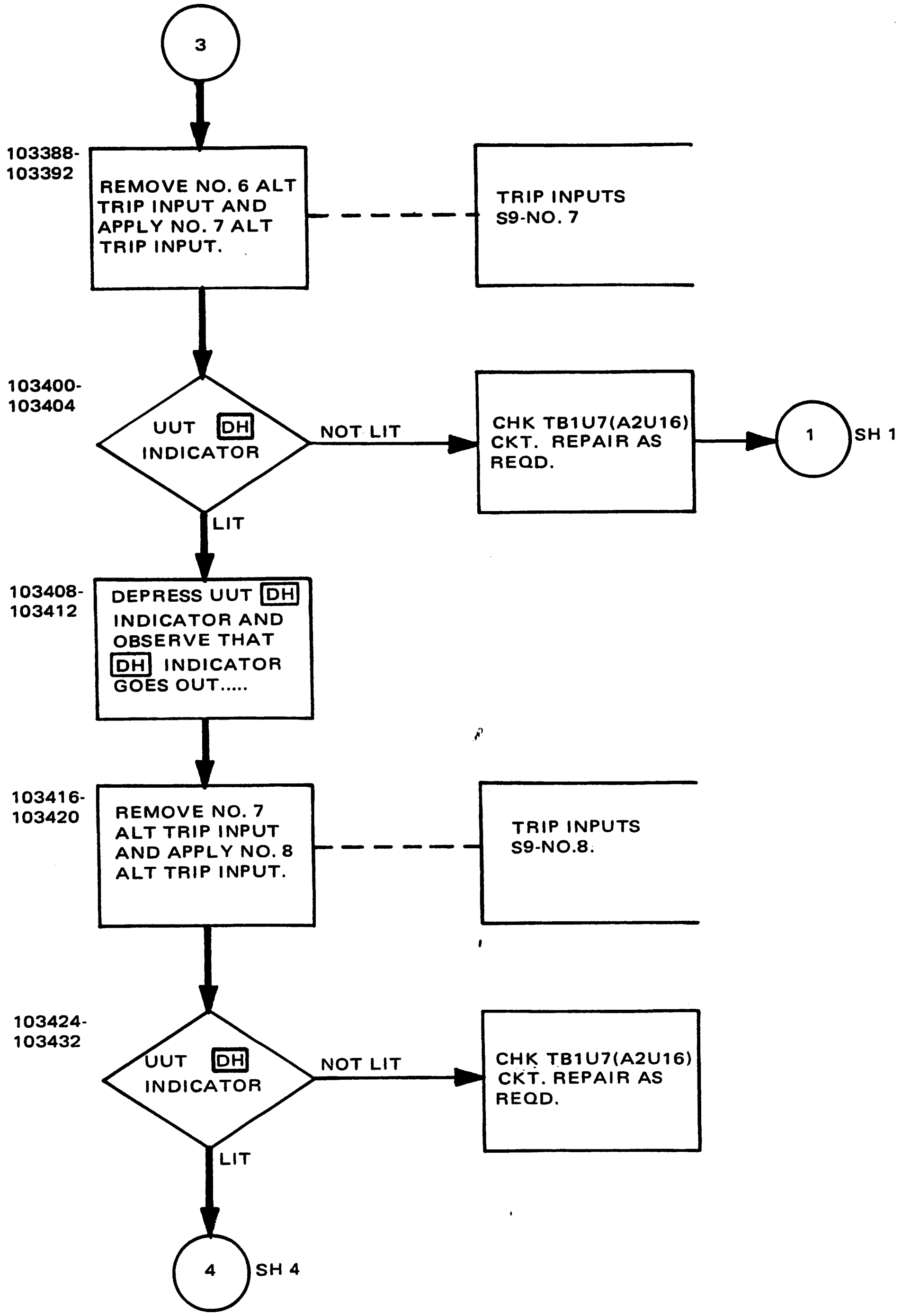
Remote Power-On Test
Figure 713


BEGIN
ALTITUDE TRIP TEST (522-4825-002, 522-4825-004, 522-4825-006).
TOTAL PERFORMANCE TEST
NO
YES
PERFORM PRETEST, FIG 702
1
103300-103304
INCREASE ALT SIG INPUT TO +6.400 VDC
ALT SIG ADJ R1.
103308-103312
ADJUST UUT DH CONTROL FULLY CCW AND.....
103308-103312
...OBSERVE THAT UUT DH INDICATOR IS NOT LIT.
103316
APPLY NO. 6 ALT TRIP INPUT.
TRIP INPUTS S9-NO. 6.
2
SH 2

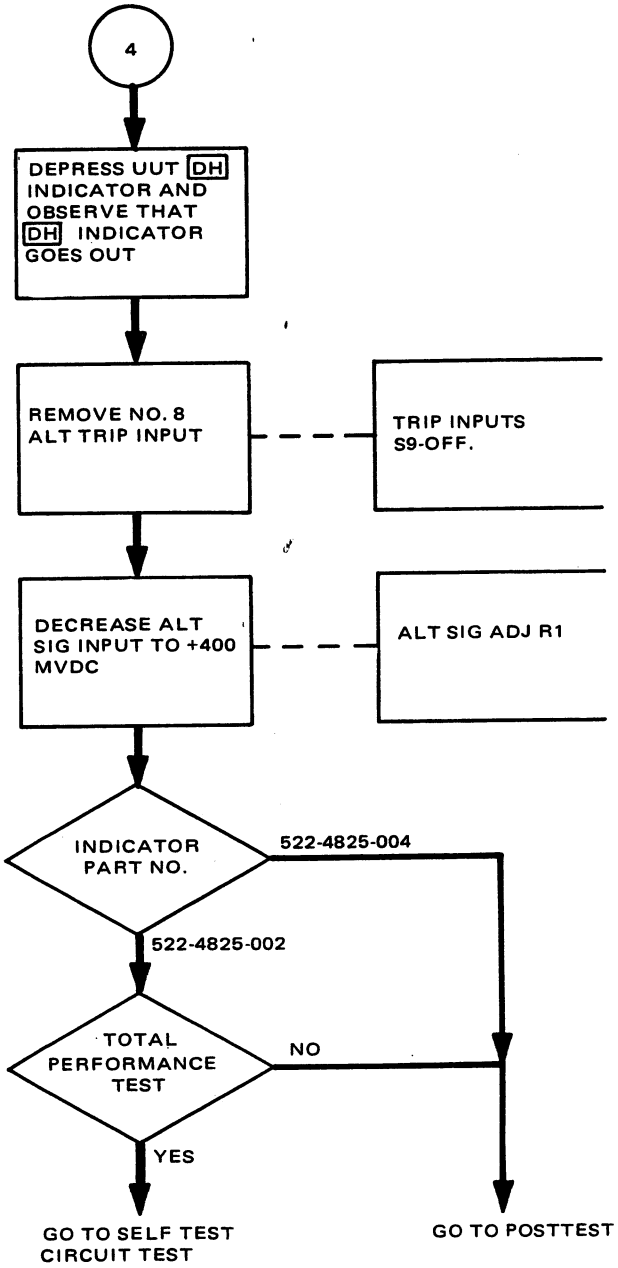
Altitude Trip Test; CPN 522-4825-002, 522-4825-004, and 522-4825-006
Figure 714 (Sheet 1 of 4)


2
103320-
103328
UUT DH INDICATOR LIT
NO
CHK TB1Q28(A2-Q28),TB1U7(A2U16) CKT. REPAIR AS REQD.
YES
103332-
103360
ADJUST ALT SIG INPUT AND AT SAME TIME OBSERVE UUT DH INDICATOR.
ALT SIG ADJ R1.
INCREASE TO +10.40 VDC, DECREASE TO +0.4 VDC AND RETURN TO +6.40 VDC.
103364-
103372
UUT DH INDICATOR
GOES OUT
PERFORM DECISION HEIGHT AND AUDIO WARN TEST.
STAYS LIT
103376-
103380
DEPRESS DH UUT INDICATOR.
103376-
103380
UUT DH INDICATOR
LIT
CHK TB1Q28(A2-Q28), S1 CKT. REPAIR AS REQD.
NOT LIT
3
SH 3
1
SH 1

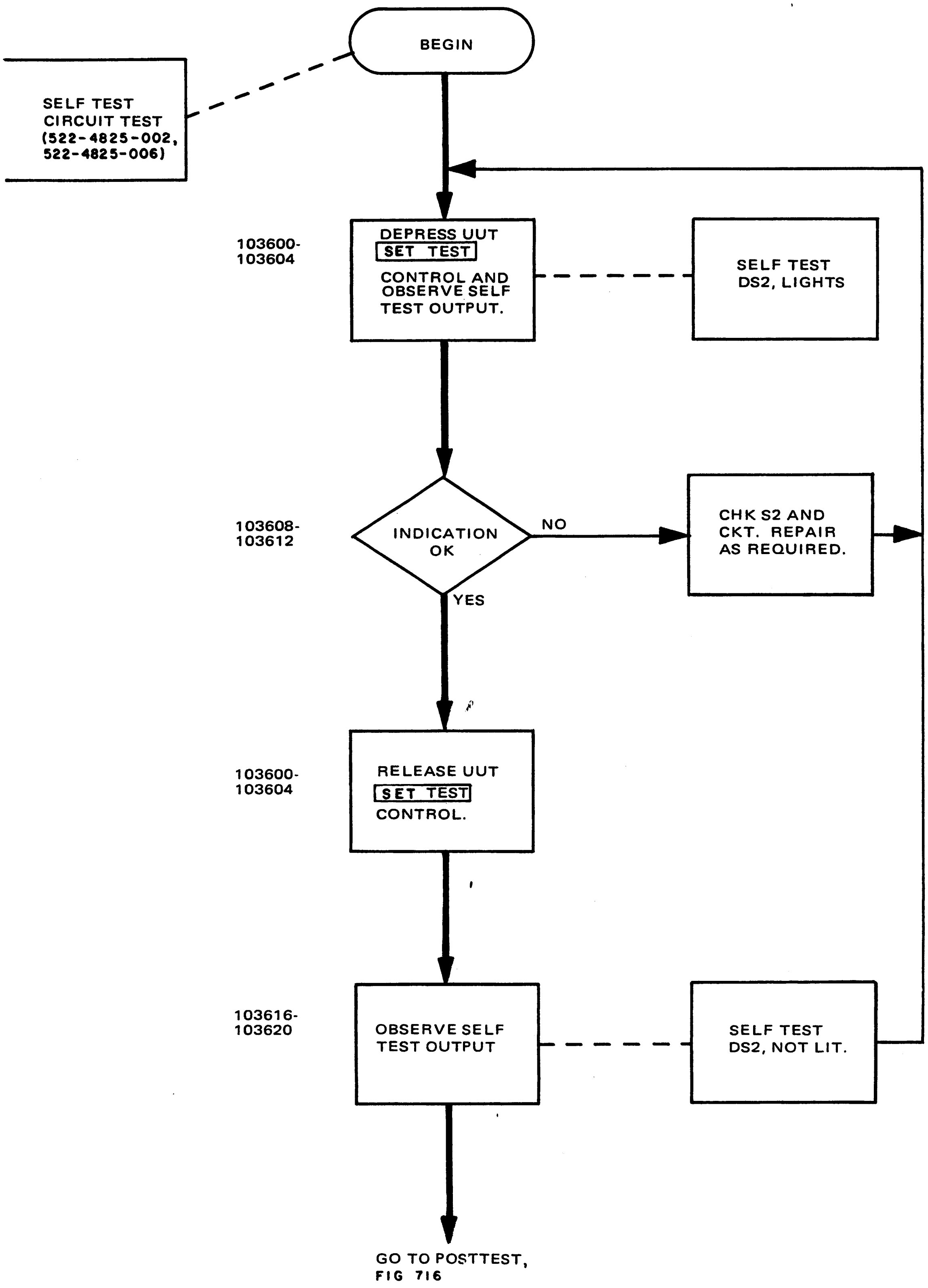
Altitude Trip Test; CPN 522-4825-002, 522-4825-004, and 522-4825-006
Figure 714 (Sheet 2 of 4)


3
103388-
103392
REMOVE NO. 6 ALT TRIP INPUT AND APPLY NO. 7 ALT TRIP INPUT.
TRIP INPUTS S9-NO. 7
103400-
103404
UUT DH INDICATOR
NOT LIT
CHK TB1U7(A2U16) CKT. REPAIR AS REQD.
1
SH 1
LIT
103408-
103412
DEPRESS UUT DH INDICATOR AND OBSERVE THAT DH INDICATOR GOES OUT.....
103416-
103420
REMOVE NO. 7 ALT TRIP INPUT AND APPLY NO. 8 ALT TRIP INPUT.
TRIP INPUTS S9-NO.8.
103424-
103432
UUT DH INDICATOR
NOT LIT
CHK TB1U7(A2U16) CKT. REPAIR AS REQD.
LIT
4
SH 4

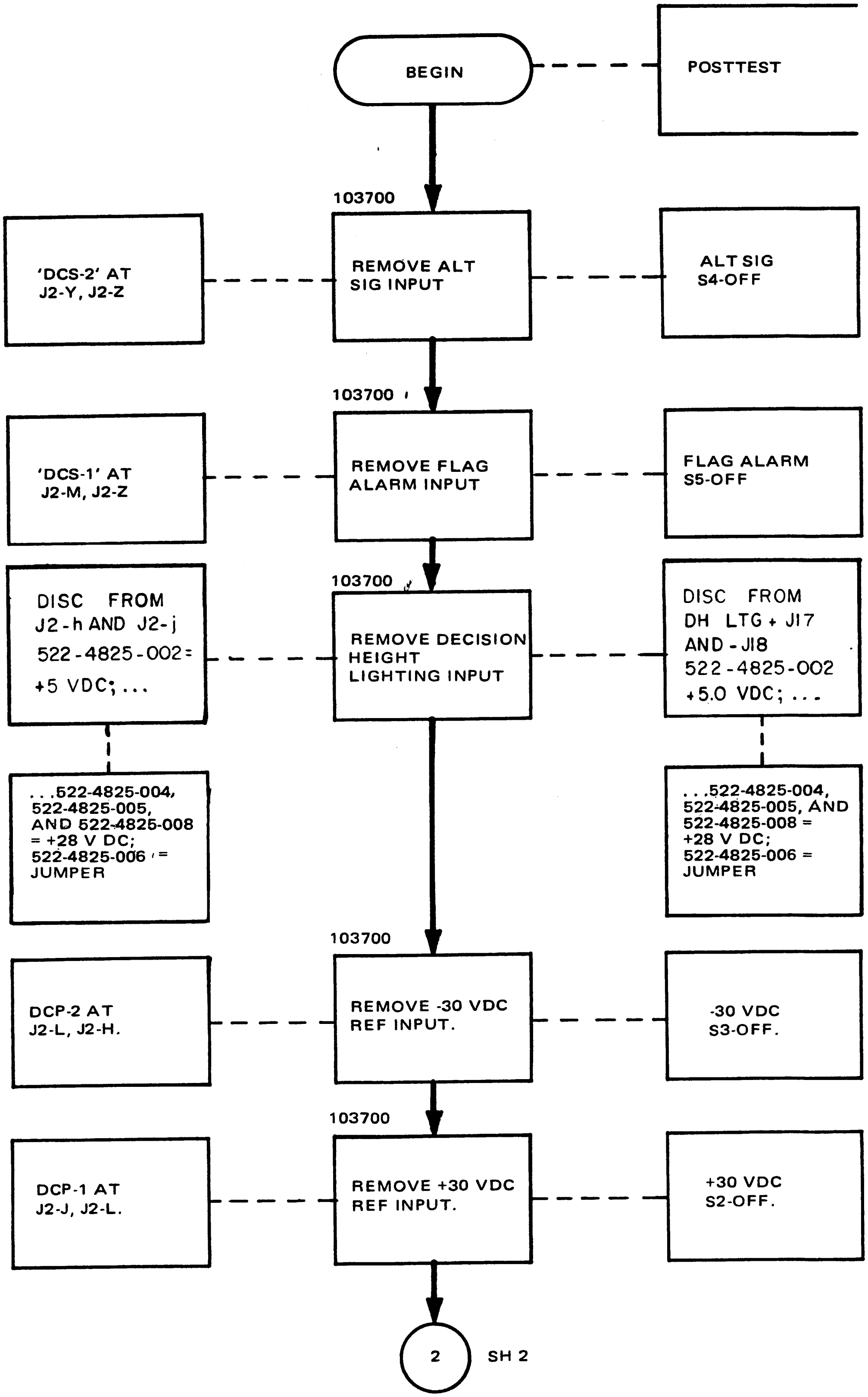
Altitude Trip Test; CPN 522-4825-002,
522-4825-004, and 522-4825-006
Figure 714 (Sheet 3 of 4)


4
DEPRESS UUT DH INDICATOR AND OBSERVE THAT DH INDICATOR GOES OUT
REMOVE NO. 8 ALT TRIP INPUT
TRIP INPUTS S9-OFF.
DECREASE ALT SIG INPUT TO +400 MVDC
ALT SIG ADJ R1
INDICATOR PART NO.
522-4825-004
522-4825-002
TOTAL PERFORMANCE TEST
NO
YES
GO TO SELF TEST CIRCUIT TEST
GO TO POSTTEST

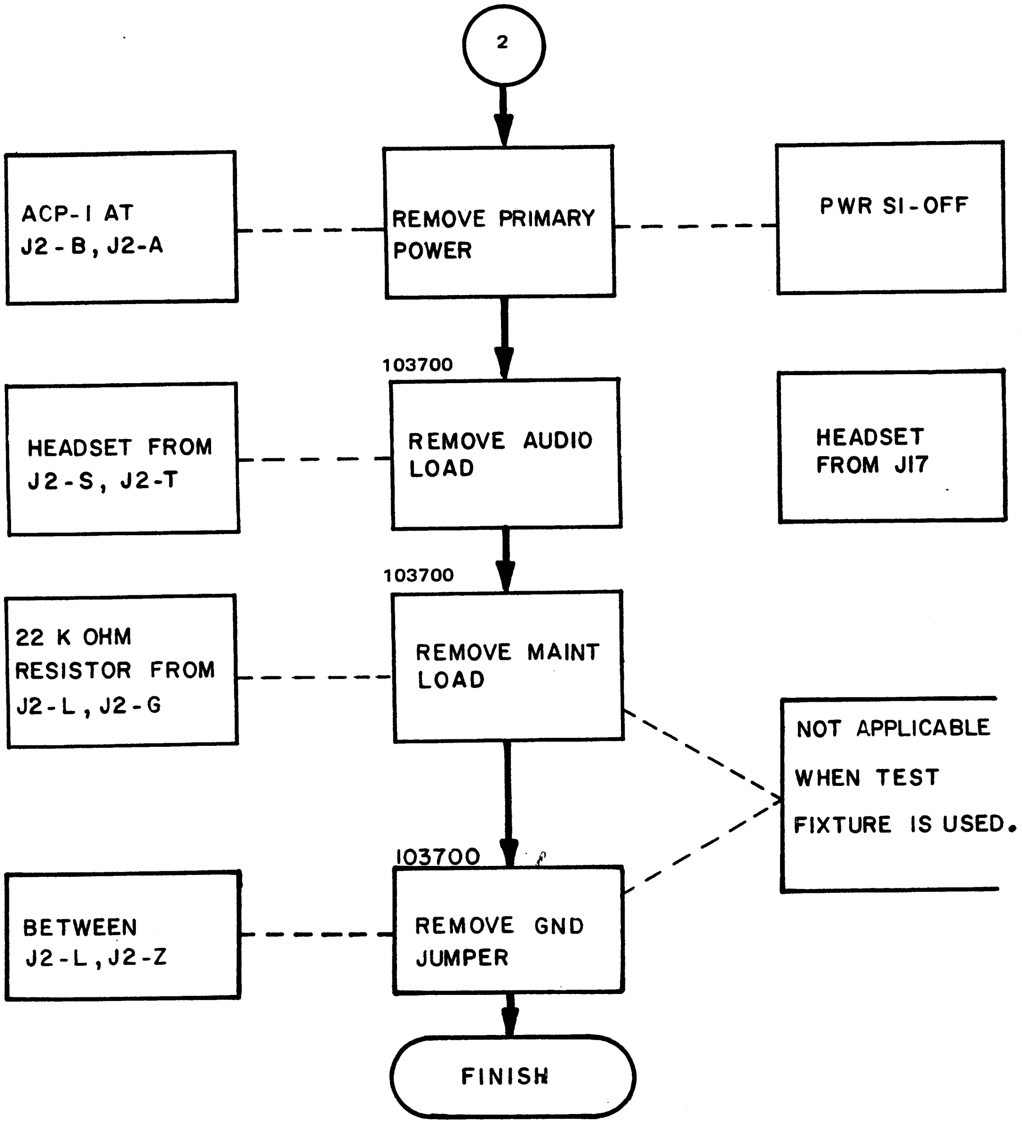
Altitude Trip Test; CPN 522-4825-002, 522-4825-004, and 522-4825-006
Figure 714 (Sheet 4 of 4)


BEGIN
SELF TEST CIRCUIT TEST (522-4825-002, 522-4825-006)
103600-103604
DEPRESS UUT SET TEST CONTROL AND OBSERVE SELF TEST OUTPUT.
SELF TEST DS2, LIGHTS
103608-103612
INDICATION OK
NO
YES
CHK S2 AND CKT. REPAIR AS REQUIRED.
103600-103604
RELEASE UUT SET TEST CONTROL.
103616-103620
OBSERVE SELF TEST OUTPUT
SELF TEST DS2, NOT LIT.
GO TO POSTTEST, FIG 716

Self-Test Circuit Test; CPN 522-4825-002 and 522-4825-006
Figure 715


BEGIN
POSTTEST
103700
'DCS-2' AT J2-Y, J2-Z
REMOVE ALT SIG INPUT
ALT SIG S4-OFF
103700
'DCS-1' AT J2-M, J2-Z
REMOVE FLAG ALARM INPUT
FLAG ALARM S5-OFF
103700
DISC FROM J2-h AND J2-j 522-4825-002= +5 VDC; ...
REMOVE DECISION HEIGHT LIGHTING INPUT
DISC FROM DH LTG + J17 AND - J18 522-4825-002 +5.0 VDC; ...
...522-4825-004, 522-4825-005, AND 522-4825-008 = +28 V DC; 522-4825-006 = JUMPER
...522-4825-004, 522-4825-005, AND 522-4825-008 = +28 V DC; 522-4825-006 = JUMPER
103700
DCP-2 AT J2-L, J2-H.
REMOVE -30 VDC REF INPUT.
-30 VDC S3-OFF.
103700
DCP-1 AT J2-J, J2-L.
REMOVE +30 VDC REF INPUT.
+30 VDC S2-OFF.
2
SH 2

Posttest Procedure
Figure 716 (Sheet 1 of 2)



Posttest Procedure
Figure 716 (Sheet 2 of 2)

```
E100000 BEGIN, ATLAS PROGRAM$
C       AUTOMATIC TEST PROGRAM FOR 339H-2 RADIO ALTITUDE INDICATOR,
        STATUS -002 AND -004$
C       POWER REQUIREMENTS$
 100010 DEFINE, 'N3 AC POWER 26V', SOURCE, AC SIGNAL, VOLTAGE 26.0V
        ERRLMT +-3.0V, CURRENT MAX 0.800A, FREQ 400.0HZ +-20.0HZ,
        CNX H1 J2-B LO J2-A$
     14 DEFINE, 'N1 DC POWER', SOURCE, DC SIGNAL, VOLTAGE ( ) RANGE
        0.000V TO +32.000V BY 1.0V RATE 2.0V/SEC ERRLMT +-0.060V,
        CURRENT MAX 0.050A, AC-COMP MAX 0.030V, NOISE MAX 0.1PC,
        DISTORTION MAX 0.1PC, CNX H1 J2-J LO J2-L$
     18 DEFINE, 'N2 DC POWER', SOURCE, DC SIGNAL, VOLTAGE ( ) RANGE
        0.000V TO -32.000V BY 1.0V RATE 2.0V/SEC ERRLMT +-0.060V,
        CURRENT MAX 0.050A, AC-COMP MAX 0.030V, NOISE MAX 0.1PC,
        DISTORTION MAX 0.1PC, CNX H1 J2-L LO J2-H$
     22 DEFINE, 'N3 DC POWER', SOURCE, DC SIGNAL, VOLTAGE +5.0V
        ERRLMT +-0.5V, CURRENT MAX 0.050A, CNX H1 J2-H LO J2-J$
     26 DEFINE, 'N4 DC POWER', SOURCE, DC SIGNAL, VOLTAGE ( ) RANGE
        0.0V TO +30.0V BY 1.0V RATE 2.0V/SEC ERRLMT +-0.25V, CURRENT
        MAX 0.050A, CNX H1( ) LO ( )$
C       SIGNAL REQUIREMENTS$
 100030 DEFINE, 'N6 DC STIM', SOURCE, DC SIGNAL, VOLTAGE ( ) RANGE
        0.0V TO +32.0V BY 1.0V RATE 2.0V/SEC ERRLMT +-0.1V, CURRENT
        MAX 0.1A, AC-COMP 0.015, NOISE MAX 0.05PC, DISTORTION MAX
        0.05PC, CNX H1 J2-M LO J2-L$
 100034 DEFINE, 'N7 DC STIM' SOURCE, DC SIGNAL, VOLTAGE ( ) RANGE
        0.000V TO +32.000V BY 0.002V RATE 0.200V/SEC ERRLMT +-0.001V
        , CURRENT MAX 0.050A, IMP 1.0OHM DC TO 1.0KHZ MAX 10.0OHM
        1.0KHZ TO 1.0MHZ, AC-COMP MAX 0.015V, NOISE MAX 0.05PC,
        DISTORTION MAX 0.05PC, CNX H1 J2-Y LO J2-Z$
C       SENSOR REQUIREMENTS$
 100038 DEFINE, 'N1 DCVM', SENSOR, DC SIGNAL, VOLTAGE ( ) RANGE
        0.000V TO +32.000V BY 0.001V ERRLMT +-5.0PC, CNX H1 J2-Y
        LO J2-Z$
     42 DEFINE, 'N2 DCVM', SENSOR, DC SIGNAL, VOLTAGE ( ) RANGE
        -32.000V TO +32.000V BY 0.001V ERRLMT +-5.0PC, CNX H1 ( )
        LO ( )$
     46 DEFINE, 'N1 ACMA', SENSOR, AC SIGNAL, CURRENT ( ) RANGE
        0.000A TO 1.000A BY 0.010A ERRLMT +-5.0PC, IMP MAX 2.0OHM,
        CNX J2B$
     50 DEFINE, 'N1 DCMA', SENSOR, AC SIGNAL, CURRENT ( ) RANGE
        0.000A TO 0.100A BY 0.001A ERRLMT +-2.0PC, IMP MAX 5.0OHM,
        CNX ( )$
C       LOAD REQUIREMENTS$
C       'N1 AUDIO LOAD' MUST BE A SPEAKER OR HEADSET$
     54 DEFINE, 'N1 AUDIO LOAD', LOAD, PULSED AC SIGNAL, IMP 600.0
        OHM, CNX H1 J2-S LO J2-T$
     56 DEFINE, 'N2 MAINT LOAD, LOAD DC SIGNAL, RES 22.0KOHM
        ERRLMT +-10.0PC, PWR 0.5W, CNX H1 J2-L LO J2-G$
E100100 INDICATE, MESSAGE, AUTOMATIC TEST PROGRAM FOR 339H-2 RADIO
        ALTITUDE INDICATOR, STATUS -002 AND -004$
     05 INDICATE, MESSAGE, CONNECT UNT TO ATE$
     10 WAIT FOR, MANUAL INTERVENTION$
C       TEST SETUP$
 100120 APPLY, 'N1 AUDIO LOAD'$
     24 APPLY, 'N2 MAINT LOAD'$
     28 APPLY, SHORT, CNX H1 J2-L LO J2-Z$
     32 APPLY, 'N3 AC POWER 26V'$
     36 APPLY, 'N1 DC POWER'$
     40 ADJUST, 'N1 DC POWER' INCREASING$
```

ATLAS Test Program
Figure 717 (Sheet 1 of 20)

```
    44 TO REACH, (VOLTAGE), DC SIGNAL, +30.000V, CNX H1 J2-J LO
       J2-L$
    48 APPLY, 'N2 DC POWER'$
    52 ADJUST, 'N2 DC POWER', DECREASING$
    56 TO REACH, (VOLTAGE), DC SIGNAL, -30.000V, CNX H1 J2-L
       LO J2-H$
    60 APPLY, 'N3 DC POWER'$
    64 APPLY, 'N6 DC STIM' $
    68 ADJUST, 'N6 DC STIM', INCREASING$
    72 TO REACH, (VOLTAGE), DC SIGNAL, +28.00V, CNX H1 J2-M LO J2-Z$
    76 APPLY, 'N7 DC STIM'$
    80 ADJUST, 'N7 DC STIM'$
    84 TO REACH, (VOLTAGE), DC SIGNAL, 0.000V, CNX H1 J2-Y LO J2-Z$
C      CURRENT TEST$
 100200 VERIFY, 'N1 ACMA', UL 0.700A LL 0.200A$
    04 GO TO, STEP 120004 IF NOGO$
    08 REMOVE, 'N1 ACMA'$
    12 VERIFY, 'N1 DCMA', UL 0.065A LL 0.020A, J2-J$
    16 GO TO, STEP 120012 IF NOGO$
    20 REMOVE, 'N1 DCMA', J2-J$
    24 VERIFY, 'N1 DCMA', MAX 0.050A, J2-H$
    28 GO TO, STEP 120020 IF NOGO$
    32 REMOVE, 'N1 DCMA', J2-H$
C      PRELIMINARY SERVO LOOP TEST$
 100300 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL TO CENTER DH
INDEX ON 400 FT ALT MARK$
    04 WAIT FOR, MANUAL INTERVENTION$
    08 INDICATE, MESSAGE, OBSERVE UUT FLAG, GO IF OUT OF VIEW$
    12 WAIT FOR, MANUAL INTERVENTION$
    16 GO TO, STEP 120028 IF NOGO$
    20 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE MOVEMENT DURING STEP
       100328 AND STEP 100332$
    24 WAIT FOR, MANUAL INTERVENTION$
    28 ADJUST, 'N7 DC STIM', INCREASING$
    32 TO REACH, (VOLTAGE), DC SIGNAL, +1.400V, CNX H1 J2-Y LO J2-Z
       $
    36 INDICATE, MESSAGE, GO IF UUT ALT TAPE MOVES TO APPROXIMATELY
       50 FT ALT INDICATION$
    40 WAIT FOR, MANUAL INTERVENTION$
    44 GO TO, STEP 120036 IF NOGO$
C      SERVO LOOP OPERATION TEST$
 100400 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE OPERATION DURING
       STEP 100408 AND STEP 100412$
    04 WAIT FOR, MANUAL INTERVENTION$
    08 ADJUST, 'N7 DC STIM', INCREASING$
    12 TO REACH, (VOLTAGE), DC SIGNAL, +26.0V, CNX H1 J2-Y LO J2-Z$
    16 INDICATE, MESSAGE, GO IF UUT ALT TAPE OPERATES SMOOTHLY$
    20 WAIT FOR, MANUAL INTERVENTION$
    24 GO TO, STEP 120044 IF NOGO$
    28 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE OPERATION DURING
       STEP 100436 AND 100444$
    32 WAIT FOR, MANUAL INTERVENTION$
    36 ADJUST, 'N7 DC STIM', DECREASING$
    40 TO REACH, (VOLTAGE), DC SIGNAL, 0.000V, CNX H1 J2-Y LO J2-Z$
    44 INDICATE, MESSAGE, GO IF UUT ALT TAPE OPERATES SMOOTHLY$
    48 WAIT FOR, MANUAL INTERVENTION$
    52 GO TO, STEP 120044 IF NOGO$
C      ALTITUDE ACCURACY TEST$
 100500 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', INCREASING, TO
       REACH, 0 FT ALT INDICATION ON UUT$
```

ATLAS Test Program
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```
 100504 WAIT FOR, MANUAL INTERVENTION$
     08 VERIFY, *N1 DCVM*, NOM +0,400V UL +0.435V LL +0,365V$
     12 GO TO, STEP 120052 IF NOGO$
BS
 100516 INDICATE, MESSAGE, ADJUST,#*N7 DC STIM*, INCREASING, TO
     REACH, 300 FT ALT INDICATION ON UUT$
     20 WAIT FOR, MANUAL INTERVENTION$
     24 VERIFY, *N1 DCVM*, NOM +6,400V UL +6.450V LL +6,350V$
     28 GO TO, STEP 120060 IF NOGO$
BS
 100532 INDICATE, MESSAGE, ADJUST,#*N7 DC STIM*, INCREASING, TO
     REACH, 500 FT ALT INDICATION ON UUT$
     36 WAIT FOR, MANUAL INTERVENTION$
     40 VERIFY, *N1 DCVM*, NOM +10,392V UL +10.462V LL +10,322V$
     44 GO TO, STEP 120068 IF NOGO$
BS
 100548 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, INCREASING, TO
     REACH, 1500 FT ALT INDICATION ON UUT$
     52 WAIT FOR, MANUAL INTERVENTION$
     56 VERIFY, *N1 DCVM*, NOM +21,115V UL +21.210V LL +21,020V$
     60 GO TO, STEP 120076 IF NOGO$
BS
 100564 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, INCREASING, TO
     REACH, 2500 FT ALT INDICATION ON UUT$
     68 WAIT FOR, MANUAL INTERVENTION$
     72 VERIFY, *N1 DCVM*, NOM +26.175V UL +26.270V LL +26.080V$
     76 GO TO, STEP 120084 IF NOGO$
BS
 100580 ADJUST, *N7 DC STIM*, INCREASING$
     84 TO REACH, (VOLTAGE), DC SIGNAL, +28,250V, CNX HI J2-Y LO
        J2-Z$
     88 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, DECREASING, TO
        REACH, 2500 FT ALT INDICATION ON UUT$
     92 WAIT FOR, MANUAL INTERVENTION$
     96 VERIFY, *N1 DCVM*, NOM +26,175V UL +26.270 LL +26,080V$
 100600 GO TO, STEP 120092 IF NOGO$
BS
 100604 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, DECREASING, TO
     REACH 1500 FT ALT INDICATION ON UUT$
     08 WAIT FOR, MANUAL INTERVENTION$
     12 VERIFY, *N1 DCVM*, NOM +21,115V UL +21.210V LL +21,020V$
     16 GO TO, STEP 120100 IF NOGO$
BS
 100620 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, DECREASING, TO
     REACH, 1000 FT ALT INDICATION ON UUT$
     24 WAIT FOR, MANUAL INTERVENTION$
     28 VERIFY, *N1 DCVM*, NOM +17,130V UL +17.230V LL +17.030V$
     32 GO TO, STEP 120108 IF NOGO$
BS
 100636 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, DECREASING, TO
        REACH, 500 FT ALT INDICATION ON UUT$
     40 WAIT FOR, MANUAL INTERVENTION$
     44 VERIFY, *N1 DCVM*, NOM +10,392V UL +10.462V LL +10,322V$
     48 GO TO, STEP 120116 IF NOGO$
BS
 100652 INDICATE, MESSAGE, ADJUST, *N7 DC STIM*, DECREASING, TO
        REACH, 400 FT ALT INDICATION$
     56 WAIT FOR, MANUAL INTERVENTION$
     60 VERIFY, *N1 DCVM*, NOM +8,400V UL +8.460V LL +8,340V$
     64 GO TO, STEP 120124 IF NOGO$
```

ATLAS Test Program
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```
BS
 100668 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', DECREASING, TO
        REACH, 300 FT ALT INDICATION ON UUT$
     72 WAIT FOR, MANUAL INTERVENTION$
     76 VERIFY, 'N1 DCVM', NOM +6.400V UL +6.450V LL +6.350V$
80 GO TO, STEP 120132 IF NOGO$
BS
 100684 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', DECREASING, TO
        REACH, 200 FT ALT INDICATION ON UUT$
     88 WAIT FOR, MANUAL INTERVENTION$
     92 VERIFY, 'N1 DCVM', NOM +4.400V UL +4.440V LL +4.360V$
     96 GO TO, STEP 120140 IF NOGO$
BS
 100700 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', DECREASING, TO
        REACH, 100 FT ALT INDICATION$
     04 WAIT FOR, MANUAL INTERVENTION$
     08 VERIFY, 'N1 DCVM', NOM +2.400V UL +2.440V LL +2.360V$
     12 GO TO, STEP 120148 IF NOGO$
BS
 100716 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', DECREASING, TO
        REACH, 0 FT ALT INDICATION ON UUT$
     20 WAIT FOR, MANUAL INTERVENTION$
 100724 VERIFY, 'N1 DCVM', NOM +0.400V UL +0.440V LL +0.360V$
     28 GOTO, STEP 120156 IF NOGO$
BS
 100732 SAVE, 'MEASUREMENT', 'ALT-0'$
C       FLAG OPERATION AND MAINTENANCE MONITOR TEST$
 100800 OPEN, 'N6 DC STIM'$
     04 INDICATE, MESSAGE, OBSERVE UUT FLAG, GO IF IN VIEW$
     08 WAIT FOR, MANUAL INTERVENTION$
     12 GO TO, STEP 120164 IF NOGO$
BS
 100816 VERIFY, 'N2 DCVM', MAX +1.0V, J2-G, J2-L$
     20 GO TO, STEP 120172 IF NOGO$
     24 CLOSE, 'N6 DC STIM'$
     28 INDICATE, MESSAGE, OBSERVE UUT FLAG, GO IF OUT OF VIEW$
     32 WAIT FOR, MANUAL INTERVENTION$
     36 GO TO, STEP 120180 IF NOGO$
BS
 100840 VERIFY, 'N2 DCVM', UL 15.5V LL 12.5V, J2-G, J2-L$
     44 GO TO, STEP 120188 IF NOGO$
     48 REMOVE, 'N2 DCVM', J2-G, J2-L$
     52 INDICATE, MESSAGE, ADJUST, 'N1 DC POWER', DECREASING, TO
        REACH, UUT FLAG JUST COMES INTO VIEW$
     56 WAIT FOR, MANUAL INTERVENTION$
     60 VERIFY, 'N2 DCVM', UL +25.0V LL +13.0V, J2-J, J2-L$
     64 GO TO, STEP 120196, IF NOGO$
BS
 100868 REMOVE, 'N1 DCVM', J2-G, J2-L$
 100872 ADJUST, 'N1 DC POWER', INCREASING$
     76 TO REACH, (VOLTAGE), DC SIGNAL, +30.000V, CNX HI J2-J LO
        J2-L$
     80 INDICATE, MESSAGE, SLOWLY ADJUST 'N2 DC POWER', DECREASING,
        TO REACH, UUT FLAG JUST COMES INTO VIEW$
     84 WAIT FOR, MANUAL INTERVENTION$
     88 VERIFY, 'N1 DCVM', UL -13.0V LL -25.0, J2-L, J2-H$
     92 GO TO, STEP 120204 IF NOGO$
BS
     96 REMOVE, 'N1 DCVM', J2L, J2-H$
 100900 ADJUST, 'N2 DC POWER', INCREASING$
```

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```
      04 TO REACH, (VOLTAGE), DC SIGNAL, -30.000V, CNX H1 J2-L LO
         J2-H$
      08 INDICATE, MESSAGE, OBSERVE UUT FLAG DURING STEP 100916$
      12 WAIT FOR, MANUAL INTERVENTION$
      16 APPLY, (VOLTAGE), DC SIGNAL, +28.0V, H1 J2-B LO J2-L$
      20 INDICATE, MESSAGE, GO IF UUT FLAG FLASHES INTO VIEW AS
         ALT TAPE MOVES TO OFF SCALE AREA$
      24 WAIT FOR, MANUAL INTERVENTION$
      28 GO TO, STEP 120212$
B$
 100932 INDICATE, MESSAGE, OBSERVE UUT FLAG DURING STEP 100940$
      36 WAIT FOR, MANUAL INTERVENTION$
      40 REMOVE, (VOLTAGE), DC SIGNAL, +28.0V, H1 J2-B LO J2-L$
      44 INDICATE, MESSAGE, GO IF FLAG FLASHES INTO VIEW AS TAPE
         RETURNS TO BLACK AND YELLOW STRIPED AREA$
      48 WAIT FOR, MANUAL INTERVENTION$
      52 GO TO, STEP 120
B$
 100956 INDICATE, MESSAGE, SLOWLY ADJUST 'N6 DC STIM', DECREASING,
         TO REACH, UUT FLAG JUST COMES INTO VIEW$
      60 WAIT FOR, MANUAL INTERVENTION$
      64 VERIFY, 'N1 DCVM', UL +19.0V LL +2.0V, J2-M, J2-L$
      68 GO TO, STEP ...... IF NOGO$
B$
 100972 INDICATE, MESSAGE, OBSERVE UUT ALT INDICATION, GO IF ALT
         INDICATION IS IN OFF SCALE AREA$
      76 WAIT FOR, MANUAL INTERVENTION$
      80 GO TO, STEP 120236
B$
 100984 INDICATE, MESSAGE, SLOWLY ADJUST 'N6 DC STIM', INCREASING,
         TO REACH, UUT FLAG JUST GOES OUT OF VIEW$
      88 WAIT FOR, MANUAL INTERVENTION$
      92 VERIFY, 'N1 DCVM', MAX 19.0V, J2-M, J2-L$
      96 GO TO, STEP 120244$
B$
 101000 INDICATE, MESSAGE, OBSERVE UUT ALT INDICATION, GO IF 2500 FT
         ALT INDICATION$
      04 WAIT FOR, MANUAL INTERVENTION$
      08 GO TO, STEP 120252$
B$
 101012 REMOVE, 'N1 DCVM', J2-M, J2-L$
      16 VERIFY, 'N1 DCVM', UL +10.0V LL +2.0V, J2-G, J2-L$
      20 GO TO, STEP 120260$
B$
 101024 REMOVE, 'N1 DCVM', J2G, J2L$
 101028 ADJUST, 'N6 DC STIM', INCREASING$
      32 TO REACH, (VOLTAGE), DC SIGNAL, +28.0V, H1 J2-M  LO J2-L$
      36 OPEN, 'N3 AC POWER 26V'$
      40 INDICATE, MESSAGE, OBSERVE UUT FLAG, GO IF FLAG IS IN
         VIEW$
      44 WAIT FOR, MANUAL INTERVENTION$
      48 GO TO, STEP 120268$
B$
 101052 ADJUST, 'N7 DC STIM', INCREASING$
      56 TO REACH, (VOLTAGE), DC SIGNAL, +8.400V, H1 J2-Y LO J2-Z$
      60 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE AND FLAG DURING
         STEP 101064$
      64 CLOSE, 'N3 AC POWER 26V'$
      68 INDICATE, MESSAGE, GO IF TAPE RAPIDLY MOVES TO 400 FT
         ALT INDICATION AND FLAG STAYS IN VIEW TO 400 FT THEN GOES
         OUT OF VIEW$
      72 WAIT FOR, MANUAL INTERVENTION$
```

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```
     76 GO TO, STEP 120272 IF NOGO$
BS
 101080 OPEN, 'N3 AC POWER'$
     84 ADJUST, 'N7 DC POWER', DECREASING$
     88 TO REACH, (VOLTAGE), DC SIGNAL, +2.400V, HI J2-Y LO J2-Z$
     92 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE AND FLAG DURING
        STEP 101096$
     96 CLOSE, 'N3 AC POWER 26V'$
 101100 INDICATE, MESSAGE, GO IF TAPE RAPIDLY MOVES TO 100 FT
        ALT INDICATION AND FLAG STAYS IN VIEW TO 100 FT THEN GOES
        OUT OF VIEW$
     04 WAIT FOR, MANUAL INTERVENTION$
     08 GO TO, STEP        IF NOGO$
BS
 101112 ADJUST, 'N7 DC STIM', INCREASING$
     16 TO REACH, (VOLTAGE), DC SIGNAL, +29.50V, CNX HI J2-Y LO J2-Z
        $
     20 OPEN, 'N3 AC POWER 26V'$
     24 ADJUST, 'N7 DC STIM', INCREASING$
     28 TO REACH, (VOLTAGE), DC SIGNAL, +31.50V, CNX HI J2-Y LO
        J2-Z$
     32 CLOSE, 'N3 AC POWER 26V'$
     36 DELAY, 1.0SEC$
     40 INDICATE, MESSAGE, GO IF FLAG IS IN VIEW$
     44 WAIT FOR, MANUAL INTERVENTION$
     48 GO TO, STEP 120288$
BS
 101152 ADJUST, 'N7 DC STIM', DECREASING$
     56 TO REACH, (VOLTAGE), DC SIGNAL, 0.0V, CNX HI J2-Y LO J2-Z$
C       DECISION HEIGHT INDEX AND COUNTER ACCURACY TEST$
 101500 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
        REACH,  DH INDEX CENTERED ON 10 FT ALT MARK$
     04 WAIT FOR, MANUAL INTERVENTION$
     08 INDICATE, MESSAGE, GO IF UUT DH COUNTER INDICATES NOM 10
        UL 12  LL 08$
     12 WAIT FOR, MANUAL INTERVENTION$
     16 GO TO, STEP 120296$
BS
 101520 INDICATE, MESSAGE, ADJUST UUT SET TEST CONROL, CCW, TO REACH
        , STOP$
     24 WAIT FOR, MANUAL INTERVENTION$
     28 INDICATE, MESSAGE, GO IF DH INDEX IS POSITIONED IN BLACK AND
        YELLOW STRIPED AREA$
 101532 WAIT FOR, MANUAL INTERVENTION$
     36 GO TO, STEP 120304 IF NOGO$
BS
 101540 INDICATE, MESSAGE, GO IF UUT DH COUNTER DISPLAYS BLACK AND
        YELLOW STRIPPING$
     44 WAIT FOR, MANUAL INTERVENTION$
     48 GO TO, STEP 120312 IF NOGO$
BS
 101552 ADJUST, 'N7 DC STIM', INCREASING$
     56 TO REACH, (VOLTAGE), DC SIGNAL, +3.0V, CNX HI J2-Y LO J2-Z$
     60 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO REACH
        , DH INDEX CENTERED ON 100 FT ALT MARK$
     64 WAIT FOR, MANUAL INTERVENTION$
     68 INDICATE, MESSAGE, GO IF UUT DH COUNTER INDICATES NOM 100
        UL 102  LL 98$
     70 WAIT FOR, MANUAL INTERVENTION$
     74 GO TO, STEP 120320 IF NOGO$
BS
```

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```
 101576 INDICATE, MESSAGE, OBSERVE UUT DH INDEX POSITION RELATIVE
        TO 100 FT ALT MARK AND DH COUNTER DURING STEP 101584 THRU
        STEP 101604$
     80 WAIT FOR, MANUAL INTERVENTION$
     84 ADJUST, 'N7 DC STIM', DECREASING$
     88 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX H1#J2-Y 20 J2-Z$
     92 ADJUST, 'N7 DC STIM', INCREASING$
     96 TO REACH, (VOLTAGE), DC SIGNAL, +10,400V, CNX H1 J2-Y LO
        J2-Z$
 101600 ADJUST, 'N7 DC STIM', DECREASING$
     04 TO REACH, (VOLTAGE), DC SIGNAL, +3.000V, CNX H1 J2-Y LO
        J2-Z$
 101608 INDICATE, MESSAGE, GO IF UUT DH INDEX REMAINS WITHIN WIDTH
        OF 100 FT ALT MARK AND DH COUNTER REMAINS BETWEEN 98 AND
        102$
     12 WAIT FOR, MANUAL INTERVENTION$
     16 GO TO, STEP 120324 IF NOGO$
B
 101620 ADJUST, 'N7 DC STIM', INCREASING$
     24 TO REACH, (VOLTAGE), DC SIGNAL, +3.400V, CNX H1 J2-Y LO
        J2-Z$
     28 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO
        REACH, DH INDEX CENTERED ON 200 FT ALT MARK$
     32 WAIT FOR, MANUAL INTERVENTION$
     36 INDICATE, MESSAGE, GO IF UUT DH COUNTER INDICATES NOM 200
        UL 202  LL 198$
     40 WAIT FOR, MANUAL INTERVENTION$
     44 GO TO, STEP 120332 IF NOGO$
B$
 101648 ADJUST, 'N7 DC STIM', INCREASING$
     52 TO REACH, (VOLTAGE), DC SIGNAL, +11,000V, CNX H1 J2-Y LO
        J2-Z$
     56 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO
        REACH, DH INDEX CENTERED ON 480 FT ALT MARK$
     60 WAIT FOR, MANUAL  INTERVENTION$
     64 INDICATE, MESSAGE, OBSERVE UUT DH INDEX POSITION RELATIVE
        TO 480 FT ALT MARK AND DH COUNTER DURING STEP        THRU
        STEP       $
     68 WAIT FOR, MANUAL INTERVENTION$
     72 ADJUST, 'N7 DC STIM', DECREASING$
     76 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX H1 J2-Y LO
        J2Z$
 101680 ADJUST, 'N7 DC STIM', INCREASING$
     84 TO REACH, (VOLTAGE), DC SIGNAL, +11,000V , CNX H1 J2-Y LO
        J2-Z$
     88 INDICATE, MESSAGE, GO IF UUT DH INDEX REMAINS WITHIN WIDTH
        OF 480 FT ALT MARK AND DH COUNTER REMAINS BETWEEN 478 AND
        482$
     92 WAIT FOR, MANUAL INTERVENTION$
     96 GO TO, STEP 120340 IF NOGO$
B$
 101700 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, FULLY CW
        AND OBSERVE DH COUNTER, GO IF DH COUNTER DISPLAY IS BLACK
        ABOVE 499$
     04 WAIT FOR, MANUAL INTERVENTION$
     08 GO TO, STEP 120348 IF NOGO$
B$
 101712 ADJUST, 'N7 DC STIM', DECREASING$
     16 TO REACH, (VOLTAGE), DC SIGNAL, +2.400V, CNX H1 J2-Y LO
        J2-Z$
```

```
      20 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
         REACH, 00 ON DH COUNTER AND AT SAME TIME  OBSERVE ALT TAPE
         MOVEMENT, GO IF ALT TAPE DECREASES LESS THAN WIDTH  OF 100
         FT ALT MARKS
      24 WAIT FOR, MANUAL INTERVENTION$
      28 GO TO, STEP 120356 IF NOGO$
BS
  101732 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', TO REACH, UUT
         AIRCRAFT SYMBOL CENTERED ON 100 FT ALT MARK$
      36 WAIT FOR, MANUAL INTERVENTION$
  101740 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO
         REACH, 480 ON DH COUNTER AND AT SAME TIME OBSERVE ALT
         TAPE MOVEMENT, GO IF ALT TAPE INCREASES LT WIDTH OF 100 FT
         ALT MARK$
      44 WAIT FOR, MANUAL INTERVENTION$
      48 GO TO, STEP 120364 IF NOGO$
BS
  101752 ADJUST, 'N7 DC STIM', INCREASING$
      56 TO REACH, (VOLTAGE), DC SIGNAL, +8.400V, CNX HI J2-Y LO
         J2-Z$
      60 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
         REACH, 00 ON DH COUNTER AND AT SAME TIME OBSERVE ALT TAPE
         MOVEMENT, GO IF ALT TAPE DECREASES LESS THAN WIDTH OF 400 FT
         ALT MARK$
      64 WAIT FOR, MANUAL INTERVENTION$
      68 GO TO, STEP        IF NOGO$
BS
  101772 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', TO REACH, UUT
         AIRCRAFT SYMBOL CENTERED ON 400 FT ALT MARK$
      76 WAIT FOR, MANUAL INTERVENTION$
      80 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO
         REACH, 480 ON DH COUNTER AND AT SAME TIME OBSERVE ALT TAPE
         MOVEMENT, GO IF ALT TAPE INCREASES LT WIDTH OF 400 FT
         ALT MARK$
      84 WAIT FOR, MANUAL INTERVENTION$
      88 GO TO, STEP 120380 IF NOGO$
BS
  101792 ADJUST, 'N7 DC STIM', DECREASING$
      96 TO REACH, (VOLTAGE), DC SIGNAL, 0.0V, CNX HI J2-Y LO J2-Z$
C        DECISION HEIGHT AND AUDIO WARN TESTS
  101900 ADJUST, 'N7 DC STIM', INCREASING$
      04 TO REACH, (VOLTAGE), DC SIGNAL, +2.000V, CNX HI J2-Y LO
         J2-Z$
      08 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
         REACH, DH INDEX CENTERED ON 0 FT ALT MARK$
      12 WAIT FOR, MANUAL INTERVENTION$
      16 ADJUST, 'N7 DC STIM', DECREASING$
      20 TO REACH, (VOLTAGE), DC SIGNAL, +0.360V, CNX HI J2-Y LO
         J2-Z$
      24 INDICATE, MESSAGE, OBSERVE UUT DH INDICATOR, GO IF LIT$
      28 WAIT FOR, MANUAL INTERVENTION$
      32 GO TO, STEP 120388 IF NOGO$
      36 ADJUST, 'N7 DC STIM', INCREASING$
      40 TO REACH, (VOLTAGE), DC SIGNAL, +2.000V, CNX HI J2-Y LO
         J2-Z$
      44 INDICATE, MESSAGE, OBSERVE UUT DH INDICATOR, GO IF NOT LIT$
      48 WAIT FOR, MANUAL INTERVENTION$
      52 GO TO, STEP        IF NOGO$
BS
  101956 APPLY, 'N4 DC POWER' , +5.0V, J2-E, J2-L$
      60 VERIFY, 'N1 DCVM', NOM +5.0V, J2-F, J2-L$
```

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```
     64 GO TO, STEP 120404 IF NOGO$
B$
 101968 REMOVE, 'N1 DCVM', J2-F, J2-L$
     72 VERIFY, 'N1 DCVM', NOM  +5.0V, J2-C, J2-L$
     76 GO TO, STEP 120412 IF NOGO$
B$
 101980 INDICATE, MESSAGE, LISTEN FOR UUT AUDIO WARN TONE BURSTS,
        GO IF NOT PRESENT$
 101984 WAIT FOR, MANUAL INTERVENTION$
     88 GO TO, STEP 120420 IF NOGO$
 101992 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO
        REACH, AUDIO WARN TONE BURSTS JUST START$
     96 WAIT FOR, MANUAL INTERVENTION$
 102000 VERIFY, 'N2 DCVM', NOM +1.400V UL +1.440V LL 1.360V$
     04 GO TO, STEP 120428 IF NOGO$
B$
 102008 REMOVE, 'N4 DC POWER', J2-E, J2-L$
     12 REMOVE, 'N1 DCVM', J2-C, J2-L$
     16 APPLY,  'N4 DC POWER', +5.0V, J2-E, J2-L$
     20 VERIFY, 'N1 DCVM', +5.0V, J2-D, J2-L$
     24 GO TO, STEP 120436 IF NOGO$
B$
 102028 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', INCREASING, TO REACH
        , AUDIO WARN TONE BURSTS JUST STOP$
     32 WAIT FOR, MANUAL INTERVENTION$
     36 VERIFY, 'N2 DCVM', NOM +1.500V UL +1.520V LL +1.480V$
     40 GO TO, STEP 120444 IF NOGO$
B$
 102044 VERIFY, 'N1 DCVM', +5.0V, J2-D, J2-L$
     48 GO TO, STEP        IF NOGO$
B$
 102052 REMOVE, 'N1 DCVM', J2-D, J2-L$
     56 REMOVE, 'N4 DC POWER', J2-C, J2-L$
     60 ADJUST, 'N7 DC STIM ', DECREASING$
     64 TO REACH, (VOLTAGE), DC SIGNAL, +1.360V, CNX HI J2-Y LO
        J2-Z$
 102068 INDICATE, MESSAGE, LISTEN TO AUDIO WARN TONE BURSTS DURING
        STEP 102076 AND STEP 102080, TONE BURSTS INCREASE IN SPEED
        AS ALT SIG INPUT DECREASES$
     72 WAIT FOR, MANUAL INTERVENTION$
     76 ADJUST, 'N7 DC STIM', DECREASING$
     80 TO REACH, (VOLTAGE), DC SIGNAL, +0.600V, CNX HI J2-Y LO
        J2-Z$
     84 INDICATE, MESSAGE, GO IF TONE BURSTS INCREASE AS ALT
        DECREASES$
     88 WAIT FOR, MANUAL INTERVENTION$
     92 GO TO, STEP 120460 IF NOGO$
B$
 102096 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO REACH
        , DH INDICATOR JUST LIGHTS$
 102100 WAIT FOR, MANUAL INTERVENTION$
     04 VERIFY, 'N2 DCVM', NOM +0.400V UL +0.435V LL +0.365V$
     08 GO TO, STEP 120468 IF NOGO$
B$
 102112 INDICATE, MESSAGE, LISTEN FOR AUDIO WARN TONE BURSTS, GO
        IF AUDIO WARN TONE BURSTS ARE NOT PRESENT$
     16 WAIT FOR, MANUAL INTERVENTION$
     20 GO TO, STEP 120476 IF NOGO$
B$
 102124 APPLY, 'N4 DC POWER', +5.0V, J2-C, J2-L$
```

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```
    28 VERIFY 'N1 DCVM',  0.0V, J2-D, J2-L$
    32 GO TO, STEP 120484 IF NOGO$
B$
102136 REMOVE, 'N4 DC POWER', J2-C, J2-L$
    40 REMOVE, 'N1 DCVM', J2-D, J2-L$
102144 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', INCREASING, TO
       REACH, UUT DH INDICATOR JUST GOES OUT$
    48 WAIT FOR, MANUAL INTERVENTION$
    52 VERIFY, 'N2 DCVM', UL +0.900V LL +0.600V$
    56 GO TO, STEP 120492 IF NOGO$
B$
102160 INDICATE, MESSAGE, LISTEN FOR AUDIO WARN TONE BURSTS, GO
       IF NOT PRESENT$
    64 GO TO, STEP 120500 IF NOGO$
B$
102168 ADJUST, 'N7 DC STIM', INCREASING$
    72 TO REACH, (VOLTAGE), DC SIGNAL, +1.900V, CNX HI J2-Y LO
       J2-Z$
    76 ADJUST, 'N7 DC STIM', DECREASING$
    80 TO REACH, (VOLTAGE), DC SIGNAL, +1.360V, CNX HI J2-Y LO
       J2-Z$
    84 INDICATE, MESSAGE, LISTEN FOR AUDIO WARN TONE BURSTS, GO
       IF TONE BURSTS ARE PRESENT$
    88 WAIT FOR, MANUAL INTERVENTION$
    92 GO TO, STEP 120504 IF NOGO$
B$
102196 ADJUST, 'N7 DC STIM', INCREASING$
102200 TO REACH, (VOLTAGE), DC SIGNAL, +12.00V, CNX HI J2-Y LO
       J2-Z$
    04 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CW, TO
       REACH, DH INDEX CENTERED ON 480 FT ALT MARK$
    08 WAIT FOR, MANUAL INTERVENTION$
    12 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO REACH
       , AUDIO WARN TONE BURSTS JUST START$
    16 WAIT FOR, MANUAL INTERVENTION$
102220 VERIFY, 'N2 DCVM', UL +10.989V LL 10.917V$
    24 GO TO, STEP        IF NOGO$
B$
102228 APPLY, 'N4 DC POWER', +5.0V, J2-E, J2-L$
    32 VERIFY, 'N1 DCVM', +5.0V, J2-D, J2-L$
    36 GO TO, STEP 120540 IF NOGO$
B$
102240 REMOVE, 'N1 DCVM', J2-D, J2-L$
    44 REMOVE, 'N4 DC POWER', J2-C, J2-L$
    48 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', INCREASING, TO REACH
       , AUDIO WARN TONE BURSTS JUST STOP$
    52 WAIT FOR, MANUAL INTERVENTION$
    56 VERIFY, 'N2 DCVM', UL +11.062V LL +11.025V$
    60 GO TO, STEP 120528 IF NOGO$
B$
102264 ADJUST, 'N7 DC STIM', DECREASING$
    68 TO REACH, (VOLTAGE), DC SIGNAL, +10.917V, CNX HI J2-Y LO
       J2-Z$
    72 INDICATE, MESSAGE, LISTEN TO AUDIO WARN TONE BURST INCREASE
       IN SPEED AS ALT IS DECREASED DURING STEP 102280 AND STEP
       102284$
    76 WAIT FOR, MANUAL INTERVENTION$
    80 ADJUST, 'N7 DC STIM', DECREASING$
    84 TO REACH, (VOLTAGE), DC SIGNAL, +10.200V, CNX HI J2-Y LO
       J2-Z$
```

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```
      88 INDICATE, MESSAGE, GO IF UUT AUDIO TONE BURSTS INCREASE AS
         ALT DECREASES$
      92 WAIT FOR, MANUAL INTERVENTION$
      96 GO TO, STEP 120536 IF NOGO$
B$
  102300 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO
         REACH, UUT DH INDICATOR JUST LIGHTS$
      04 WAIT FOR, MANUAL INTERVENTION$
      08 VERIFY, 'N2 DCVM', NOM +10.000V UL+10.040V LL +9.960VA
      12 GO TO, STEP 120544 IF NOGO$
B$
  102316 INDICATE, MESSAGE, LISTEN FOR AUDIO WARN TONE BURSTS, GO
         IF TONE BURSTS ARE NOT PRESENT$
      20 WAIT FOR, MANUAL INTERVENTION$
      24 GO TO, STEP 120552 IF NOGO$
B$
  102328 INDICATE, MESSAGE, ADJUST, 'N7 DC STIM', INCREASING, TO
         REACH, UUT DH INDICATOR JUST GOES OUT$
      32 WAIT FOR, MANUAL INTERVENTION$
      36 VERIFY, 'N2 DCVM', UL +10.488V LL +10.198V$
      40 GO TO, STEP 120560 IF NOGO$
B$
  102344 ADJUST, 'N7 DC STIM', INCREASING$
      48 TO REACH, (VOLTAGE), DC SIGNAL, +11.399V, CNX HI J2-Y LO
         J2-Z$
      52 ADJUST, 'N7 DC STIM', DECREASING$
      56 TO REACH, (VOLTAGE), DC SIGNAL, +10.917V, CNX HI J2-Y LO
         J2-Z$
      60 INDICATE, MESSAGE, GO IF AUDIO WARN TONE BURSTS ARE PRESENT$
      64 WAIT FOR, MANUAL INTERVENTION$
      68 GO TO, STEP 120568 IF NOGO$
$
  102372 ADJUST, 'N7 DC STIM', DECREASING$
  102376 TO REACH, (VOLTAGE), DC SIGNAL, +6.000V, CNX HI J2-Y LO
         J2-Z$
      80 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
         REACH, DH INDEX CENTERED ON 200 FT ALT MARK$
      84 WAIT FOR, MANUAL INTERVENTION$
      88 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO
         REACH, AUDIO WARN TONE BURSTS JUST START$
      92 WAIT FOR, MANUAL INTERVENTION$
      96 VERIFY, 'N2 DCVM', NOM +5.400V UL +5.440V LL +5.360V$
  102400 GO TO, STEP 120576 IF NOGO$
B$
  102404 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', INCREASING, TO
         REACH, UUT AUDIO WARN TONE BURSTS JUST STOP$
      08 WAIT FOR, MANUAL INTERVENTION$
      12 VERIFY, 'N2 DCVM', NOM +5.500V UL +5.520V LL +5.480V$
      16 GO TO, STEP 120584 IF NOGO$
B$
  102420 ADJUST, 'N7 DC STIM', DECREASING$
      24 TO REACH, (VOLTAGE), DC SIGNAL, +5.360V, CNX HI J2-Y LO
         J2-Z$
      28 INDICATE, MESSAGE, LISTEN TO AUDIO WARN TONE BURSTS INCREASE
         IN SPEED AS ALT DECREASES DURING STEP 102436 AND  STEP
         102440$
      32 WAIT FOR, MANUAL INTERVENTION$
      36 ADJUST, 'N7 DC STIM', DECREASING$
      40 TO REACH, (VOLTAGE), DC SIGNAL, +4.600V, CNX HI J2-Y LO
         J2-Z$
```

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```
     44 INDICATE, MESSAGE, GO IF UUT AUDIO WARN TONE BURSTS INCREASE
        AS ALT DECREASES$
     48 WAIT FOR, MANUAL INTERVENTION$
 102452 GO TO, STEP 120592 IF NOGO$
B$
 102456 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', DECREASING, TO
        REACH, UUT DH INDICTOR JUST LIGHTS$
     60 WAIT FOR, MANUAL INTERVENTION$
     64 VERIFY, 'N2 DCVM', NOM +4.400V UL +4.440V LL +4.360V$
     68 GO TO, STEP 120600 IF NOGO$
B$
 102472 INDICATE, MESSAGE, GO IF AUDIO WARN TONE BURSTS ARE NOT
        PRESENT$
     76 WAIT FOR, MANUAL INTERVENTION$
     80 GO TO, STEP 120608 IF NOGO$
B$
 102484 INDICATE, MESSAGE, ADJUST 'N7 DC STIM', INCREASING, TO
        REACH, UUT DH INDICATOR JUST GOES OUT$
     88 WAIT FOR, MANUAL INTERVENTION$
     92 VERIFY, 'N2 DCVM', UL +4.900V LL +4.600V$
     96 GO TO, STEP 120616 IF NOGO$
B$
 102500 ADJUST, 'N7 DC STIM', INCREASING$
     04 TO REACH, (VOLTAGE), DC SIGNAL, +5.900V, CNX HI J2-Y LO
        J2-Z$
     08 ADJUST, 'N7 DC STIM', DECREASING$
     12 TO REACH, (VOLTAGE), DC SIGNAL, +5.360V, CNX HI J2-Y LO
        J2-Z$
     16 INDICATE, MESSAGE, GO IF AUDIO WARN TONE BURSTS ARE PRESENT$
     20 WAIT FOR, MANUAL INTERVENTION$
     24 GO TO, STEP 120624 IF NOGO$
B$
 102528 ADJUST, 'N7 DC STIM', DECREASING$
     32 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX HI J2-Y LO
        J2-Z$
C       COMPARATOR WARN  TEST$
 102800 ADJUST, 'N7 DC STIM', INCREASING$
     04 TO REACH, (VOLTAGE), DC SIGNAL, +10.392V, CNX HI J2-Y LO
        J2-Z$
     08 APPLY, 'N4 DC POWER', +2.000V, J2-K, J2-L$
     12 OPEN, 'N6 DC STIM'$
     16 INDICATE, MESSAGE, GO IF UUT FLAG IS IN VIEM AND ALT
        INDICATION IS IN OFF SCALE (BLACK) AREA$
     18 WAIT FOR, MANUAL INTERVENTION$
     20 GO TO, STEP 120632 IF NOGO$
B$
 102824 INDICATE, MESSAGE, DEPRESS UUT SET TEST CONTROL, GO IF ALT
        INDICATION IS 500 FT, RELEASE SET TEST CONTROL$
     28 WAIT FOR, MANUAL INTERVENTION$
     32 GO TO, STEP 120640 IF NOGO$
     36 INDICATE, MESSAGE, GO IF UUT ALT INDICATION IS OFF SCALE$
     40 WAIT FOR, MANUAL INTERVENTION$
     44 GO TO, STEP 120648 IF NOGO$
B$
 102848 CLOSE, 'N6 DC STIM'$
     52 INDICATE, MESSAGE, GO IF UUT FLAG IS OUT OF VIEW AND ALT
        INDICATION IS IN OFF SCALE AREA$
     56 WAIT FOR, MANUAL INTERVENTION$
     60 GO TO, STEP 120656 IF NOGO$
B$
```

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```
 102864 ADJUST, 'N7 DC STIM', DECREASING$
     68 TO REACH, (VOLTAGE), DC SIGNAL, +2.400V, CNX HI J2-Y LO
        J2-Z$
     72 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE DURING STEP 102880$
     76 WAIT FOR, MANUAL INTERVENTION$
     80 REMOVE, 'N4 DC POWER', +2.000V, J2-K, J2-L$
     84 INDICATE, MESSAGE, GO IF UUT ALT TAPE RAPIDLY MOVES TO
        100 FT ALT INDICATION$
     88 WAIT FOR, MANUAL INTERVENTION$
     92 GO TO, STEP 120664 IF NOGO$
B$
 102896 ADJUST, 'N7 DC STIM', DECREASING$
 102900 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX HI J2-Y LO
        J2-Z$
C       REMOTE POWER-ON TEST$
 103100 ADJUST, 'N7 DC STIM', INCREASING$
     04 TO REACH, (VOLTAGE), DC SIGNAL, +10.392V, CNX HI J2-Y LO
        J2-Z$
     08 APPLY, 'N4 DC POWER', +28.000V, J2-B, J2-L$
     12 OPEN, 'N1 DC POWER' $
     16 INDICATE, MESSAGE, GO IF UUT ALT INDICATION IS IN OFF SCALE
        AREA AND FLAG IS OUT OF VIEW$
     20 WAIT FOR, MANUAL INTERVENTION$
     24 GO TO, STEP 120672 IF NOGO$
     28 INDICATE, MESSAGE, OBSERVE UUT ALT TAPE AND FLAG DURING
        STEP 103136 AND STEP 103140$
     32 WAIT FOR, MANUAL INTERVENTION$
B$
 103136 CHOSE, 'N1 DC POWER'$
     40 REMOVE, 'N4 DC POWER', +28.000V, J2-B, J2-L$
     44 INDICATE, MESSAGE, GO IF UUT FLAG IS IN VIEW AS ALT TAPE
        DRIVES TO 500.FT ALT INDICATION THEN GOES OUT OF VIEW AND
        ALT TAPE INDICATES 500 FT$
     48 WAIT FOR, MANUAL INTERVENTION$
     52 GO TO, STEP 120680 IF NOGO$
B$
 103156 ADJUST, 'N7 DC STIM', DECREASING$
     60 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX HI J2-Y LO
        J2-Z$
C       ALTITUDE  TRIP TEST$
 103300 ADJUST, 'N7 DC STIM', INCREASING$
     04 TO REACH, (VOLTAGE), DC SIGNAL, +6.400V, CNX HI J2-Y LO
        J2-Z$
     08 INDICATE, MESSAGE, ADJUST UUT SET TEST CONTROL, CCW, TO
        REACH STOP, UUT DH INDICATOR IS NOT LIT$
     12 WAIT FOR, MANUAL INTERVENTION$
     16 APPLY, SHORT, CNX HI J2-L LO J2-V$
     20 INDICATE, MESSAGE, GO IF UUT DH INDICATOR IS LIT$
     24 WAIT FOR, MANUAL INTERVENTION$
     28 GO TO, STEP 120688 IF NOGO$
B$
 103332 INDICATE, MESSAGE, OBSERVE UUT DH INDICATOR DURING STEP
        103340 THRU STEP 103360$
     36 WAIT FOR, MANUAL INTERVENTION$
     40 ADJUST, 'N7 DC STIM', INCREASING$
     44 TO REACH, (VOLTAGE), DC SIGNAL, +10.400V, CNX HI J2-Y LO
        J2-Z$
 103348 ADJUST, 'N7 DC STIM', DECREASING$
     52 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX HI J2-Y LO
        J2-Z$
     56 ADJUST, 'N7 DC STIM', INCREASING$
```

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```
      60 TO REACH, (VOLTAGE), DC SIGNAL, +6.400V, CNX HI J2-Y LO
         J2-Z$
      64 INDICATE, MESSAGE, GO IF UUT DH INDICATOR STAYS LIT$
      68 WAIT FOR, MANUAL INTERVENTION$
      72 GO TO, STEP 120696 IF NOGO$
B$
  103376 INDICATE, MESSAGE, DEPRESS UUT DH INDICATOR, GO IF DH
         INDICATOR GOES OUT$
      80 WAIT FOR, MANUAL INTERVENTION$
      84 GO TO, STEP 120704 IF NOGO$
      88 REMOVE, SHORT, CNX HI J2-L LO J2-V$
      92 APPLY, SHORT, CNX HI J2-L LO 52-W$
      96 INDICATE, MESSAGE, GO IF UUT DH INDICATOR IS LIT$
  103400 WAIT FOR, MANUAL INTERVENTION$
      04 GO TO, STEP 120716 IF NOGO$
B$
  103408 INDICATE, MESSAGE, DEPRESS UUT DH INDICATOR AND OBSERVE
         DH INDICATOR GOES OUT$
      12 WAIT FOR, MANUAL INTERVENTION$
      16 REMOVE, SHORT, CNX HI J2-L LO J2-W$
      20 APPLY, SHORT, CNX HI J2-L LO J2-X$
      24 INDICATE, MESSAGE, GO IF UUT DH INDICATOR IS LIT$
      28 WAIT FOR, MANUAL INTERVENTION$
      32 GO TO, STEP 120724 IF NOGO$
B$
  103436 INDICATE, MESSAGE, DEPRESS UUT DH INDICATOR AND OBSERVE
         THAT DH INDICATOR GOES OUT$
      40 WAIT FOR, MANUAL INTERVENTION$
      44 REMOVE, SHORT, CNX HI J2-L LO J2-X$
B$
      48 ADJUST, 'N7 DC STIM', DECREASING$
      52 TO REACH, (VOLTAGE), DC SIGNAL, +0.400V, CNX HI J2-Y LO
         J2-Z$
C        SELF TEST CIRCUIT TEST$
  103600 INDICATE, MESSAGE, DEPRESS AND HOLD UUT SET TEST CONTROL
         DURING STEP 103608$
      04 WAIT FOR, MANUAL INTERVENTION$
      08 VERIFY, 'N1 DCVM', NOM +30.000V, J2-J, J2-2$
      12 GO TO, STEP 120732 IF NOGO$
      16 VERIFY, 'N1 DCVM', +0.000V, J2-J, J2-2$
      20 GO TO, STEP 120732 IF NOGO$,
B$
  103700 REMOVE, ALL$
  103704 TERMINATE, ATLAS PROGRAM$
C        FAULT STATEMENTS$
B        THIS BRANCH IS THE NOGO OF CURRENT TEST STEP 100200$
  120004 INDICATE, MESSAGE, FAILS AC CURRENT TEST$
      08 GO TO, STEP 103700$
B        THIS BRANCH IS THE NOGO OF CURRENT TEST STEP 100212$
  120012 INDICATE, MESSAGE, FAILS +30VDC REF CURRENT TEST$
      16 GO TO, STEP 103700$
B        THIS BRANCH IS THE NOGO OF CURRENT TEST STEP 100224$
  120020 INDICATE, MESSAGE, FAILS -30VDC REF CURRENT TEST$
      24 GO TO, STEP 103700$
B        THIS BRANCH IS THE NOGO OF PRELIMINARY SERVO LOOP TEST STEP
         100308$
  120028 INDICATE, MESSAG, FAILS FLAG OUT OF VIEW TEST$
      32 GO TO, STEP 103700$
B        THIS BRANCH IS THE NOGO OF PRELIMINARY SERVO LOOP TEST STEP
         100336$
  120036 INDICATE, MESSAGE, FAILS ALT TAPE OPERATION TEST$
```

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```
     40 GO TO, STEP 103700$
B       THIS BRANCH IS NOGO OF SERVO LOOP OPERATION TEST STEP 100416
        STEP 100444$
 120044 INDICATE, MESSAGE, FAILS ALT TAPE MOVEMENT TESTS
     48 GO TO, STEP 100500$
B       THIS BRANCH IS NOGO OF ALT ACCURACY TEST, STEP 100508$
 120052 INDICATE, MESSAGE, FAILS 0 FT ALT ACCURACY TESTS
     56 GO TO, STEP 100516$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100524$
 120060 INDICATE, MESSAGE, FAILS 300 FT ALT ACCURACY TESTS
     64 GO TO, STEP 100532$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100540$
 120068 INDICATE, MESSAGE, FAILS 500 FT ALT ACCURACY TEST $
     72 GO TO, STEP 100540$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100556$
 120076 INDICATE, MESSAGE, FAILS 1500 FT ALT ACCURACY TESTS
     80 GO TO, STEP 100564$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100572$
 120084 INDICATE, MESSAGE, FAILS 2500 FT ALT ACCURACY TESTS
     88 GO TO, STEP 100580$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100596$
 120092 INDICATE, MESSAGE, FAILS 2500 FT ALT ACCURACY TESTS
     96 GO TO, STEP 100604$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100612$
 120100 INDICATE, MESSAGE, FAILS 1500#FT ALT ACCURACY TESTS
     04 GO TO,  STEP 100620$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100628$
 120108 INDICATE, MESSAGE, FAILS 1000 FT ALT ACCURACY TESTS
     12 GO TO, STEP 100636$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100644$
 120116 INDICATE, MESSAGE, FAILS 500 FT ALT ACCURACY TESTS
     20 GO TO, STEP 100652$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100660$
 120124 INDICATE, MESSAGE, FAILS 400 FT ALT ACCURACY TESTS
     28 GO TO, STEP 100668$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100676$
 120132 INDICATE, MESSAGE, FAILS 300 FT ALT ACCURACY TESTS
     36 GO TO, STEP 100684$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100692$
 120140 INDICATE, MESSAGE, FAILS 200 FT ALT ACCURACY TESTS
     44 GO TO, STEP 100700$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100708$
 120148 INDICATE, MESSAGE, FAILS 100 FT ALT ACCURACY TESTS
     52 GO TO, STEP 100716$
B       THIS BRANCH IS THE NOGO OF ALT ACCURACY TEST STEP 100724$
 120156 INDICATE, MESSAGE, FAILS 0 FT ALT ACCURACY TESTS
     60 GO TO, STEP 100732$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100804$
 120164 INDICATE, MESSAGE, FAILS FLAG IN VIEW TESTS
     68 GO TO, STEP 100816$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100816$
 120172 INDICATE, MESSAGE, FAILS MAINTENANCE MONITOR OFF TESTS
     76 GO TO, STEP 103700$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100828$
 120180 INDICATE, MESSAGE, FAILS FLAG OUT OF VIEW TESTS
     84 GO TO, STEP 100840$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100840$
```

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```
 120188 INDICATE. MESSAGE. FAILS MAINTENANCE MONITOR ON TESTS
     92 GO TO. STEP       $
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100860$
 120196 INDICATE. MESSAGE. FAILS +30 VDC REF FLAG IN VIEW TESTS
 120200 GO TO. STEP 100868$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100888$
 120204 INDICATE. MESSAGE. FAILS -30VDC REF FLAG IN VIEW TEST $
     08 GO TO. STEP 100896$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100920$
 120212 INDICATE. MESSAGE. FAILS#FLAG IN VIEW DURING ALT TAPE
        MOVEMENT TO OFF SCALE AREAS
     16 GO TO. STEP 100932$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 1009444
 120220 INDICATE. MESSAGE. FAILS FLAG IN VIEW DURING ALT TAPE
        MOVEMENT TO BLACK AND YELLOW STRPED AREAS
     24 GO TO. STEP 100956$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100964$
 120228 INDICATE. MESSAGE. FAILS FLAG ALARM DECREASE TO FLAG IN
        VIEW TESTS
     32 GO TO. STEP 100972$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 120972$
 120236 INDICATE. MESSAGE. FAILS OFF SCALE TEST WITH REDUCED FLAG
        ALARM INPUTS
     40 GO TO. STEP 100984$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 100992$
 120244 INDICATE. MESSAGE. FAILS FLAG OUT OF VIEW WITH FLAG ALARM
        INPUT TESTS
     48 GO TO. STEP 101000$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101000$
 120252 INDICATE. MESSAGE. FAILS ALT INDICATION TEST WITH REDUCED
        FLAG ALARM INPUTS
     56 GO TO. STEP 101012$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101016$
 120260 INDICATE. MESSAGE. FAILS MAINTENANCE MONITOR TEST WITH
        REDUCED FLAG ALARM INPUTS
     64 GO TO. STEP 101024$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101040$
 120268 INDICATE. MESSAGE. FAILS 26 VAC MONITOR TESTS
     72 GO TO. STEP 101500$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101068$
 120272 INDICATE. MESSAGE. FAILS FLAG. DROPOUT TEST AT RETURN TO
        400FTS
     76 GO TO. STEP 101080$
B       THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101100$
 120280 INDICATE. MESSAGE. FAILS FLAG DROPOUT TEST AT RETURN TO
        100 FTS
```

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```
     84 GO TO, STEP 101112$
 B      THIS BRANCH IS THE NOGO OF FLAG OPERATION AND MAINTENANCE
        MONITOR TEST STEP 101140$
 120288 INDICATE, MESSAGE, FAILS TOP LIMIT TESTS$
     92 GO TO, STEP 101152$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101508$
 120296 INDICATE, MESSAGE, FAILS 10 FT DH COUNTER ACCURACY TESTS$
 120300 GO TO, STEP 101520$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101528$
 120304 INDICATE, MESSAGE, FAILS BELOW 0 FT ALT DH INDEX ACCURACY
        TESTS$
     08 GO TO, STEP 101540$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TESTS$
 120312 INDICATE, MESSAGE, FAILS BELOW 0 FT ALT DH COUNTER ACCURACY
        TESTS$
     16 GO TO STEP 101552$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101568$
 120320 INDICATE, MESSAGE, FAILS 100  FT DH COUNTER ACCURACY TESTS$
     24 GO TO, STEP 101576$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101608$
 120324 INDICATE, MESSAGE, FAILS UUT DH INDEX AND COUNTER ACCURACY
        TEST WITH ALT TAPE MOVEMENTS$
     28 GO TO, STEP 101620$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101636$
 120332 INDICATE, MESSAGE, FAILS DH COUNTER ACCURACY TEST AT 200 FT$
     36 GO TO, STEP 101648$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101688$
 120340 INDICATE, MESSAGE, FAILS DH INDEX AND COUNTER ACCURACY TEST
        WITH ALT TAPE MOVEMENTS$
     44 GO TO, STEP 101700$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101700$
 120348 INDICATE, MESSAGE, FAILS ABOVE 499FT DH COUNTER TESTS$
     52 GO TO, STEP 101712$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101720$
 120356 INDICATE, MESSAGE, FAILS ALT TAPE MOVEMENT DURING DECREASE
        IN DECISION HEIGHT INDEX TEST AT 100 FT ALT INDICATIONS$
     60 GO TO, STEP 101732$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101740$
 120364 INDICATE, MESSAGE, FAILS ALT TAPE MOVEMENT DURING INCREASE
        IN DH INDEX TEST AT 100 FT ALT INDICATIONS$
     68 GO TO, STEP 101752$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101760$
 120372 INDICATE, MESSAGE, FAILS ALT TAPE MOVEMENT DURING DECREASE
        IN DH INDEX TEST AT 400 FT ALT INDICATIONS$
 120376 GO TO, STEP 101772$
 B      THIS BRANCH IS THE NOGO OF DECISION HEIGHT INDEX AND COUNTER
        ACCURACY TEST STEP 101780$
 120380 INDICATE, MESSAGE, FAILS ALT TAPE MOVEMENT DURING INCREASE
        IN DH INDEX TEST AT 400 FT ALT INDICATIONS
```

ATLAS Test Program
Figure 717 (Sheet 17 of 20)

```
     84 GO TO, STEP 101792$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 101924$
 120388 INDICATE, MESSAGE, FAILS DH LIGHT ON TESTS
     92 GO TO, STEP 101956$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 101944$
 120396 INDICATE, MESSAGE, FAILS DH LIGHT OFF TESTS
 120400 GO TO, STEP 101956$
B       THIS BRANCH IS THE NOGO  OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 101960$
 120404 INDICATE, MESSAGE, FAILS EXT DH TRIP OFF TESTS
     08 GO TO, STEP 101968$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 101972$
 120412 INDICATE, MESSAGE, FAILS EXT DH CONTROL TESTS
     16 GO TO, STEP 101980$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 101980$
 120420 INDICATE, MESSAGE, FAILS AUDIO WARN OFF TESTS
     24 GO TO, STEP 102008$
B       THIS BRANCH IS THE NOGO  OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102000$
 120428 INDICATE, MESSAGE, FAILS AUDIO WARN START TESTS
     32 GO TO, STEP 102008$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102020$
 120436 INDICATE, MESSAGE, FAILS PRE DH ALERT ON TESTS
     40 GO TO, STEP 102028$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102036$
 120444 INDICATE, MESSAGE, FAILS AUDIO WARN RESET TEST AFTER AUDIO
        WARN STARTED$
     48 GO TO, STEP 102044$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102044$
 120452 INDICATE, MESSAGE, FAILS PRE DH ALERT OFF TESTS
     56 GO TO, STEP 102052$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102084$
 120460 INDICATE, MESSAGE, FAILS AUDIO WARN INCREASE TEST AS ALT
        DECREASES$
     64 GO TO, STEP 102096$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102104$
 120468 INDICATE, MESSAGE, FAILS DH INDICATOR ON TESTS
     72 GO TO, STEP 102112$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102112$
 120476 INDICATE, MESSAGE, FAILS AUDIO WARN OFF TESTS
     80 GO TO, STEP 102124$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102128$
 120484 INDICATE, MESSAGE, FAILS PRE DH ALERT OFF TESTS
     88 GO TO, STEP 102136$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102152$
 120492 INDICATE, MESSAGE, FAILS DH INDICATOR RESET TESTS
     96 GO TO, STEP 102160$
```

ATLAS Test Program
Figure 717 (Sheet 18 of 20)

```
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102160$
 120500 INDICATE, MESSAGE, FAILS AUDIO WARN OFF AT DH RESET$
     04 GO TO, STEP 102168$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102184$
 120504 INDICATE, MESSAGE, FAILS AUDIO WARN RESET TEST$
     08 GO TO, STEP 102196$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102220$
 120512 INDICATE, MESSAGE, FAILS AUDIO WARN ON TEST AT 480 FT$
     16 GO TO, STEP 102228$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102232$
 120520 INDICATE, MESSAGE, FAIL PRE DH ALERT ON TEST AT 480 FT$
     24 GO TO, STEP 102240$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102256$
 120528 INDICATE, MESSAGE, FAILS AUDIO WARN RESET FROM PRE DH AT
        480 FT ALT$
     32 GO TO, STEP 102264$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102288$
 120536 INDICATE, MESSAGE, FAILS AUDIO WARN TEST AT 480 FT$
     40 GO TO, STEP 102300$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102308$
 120544 INDICATE, MESSAGE, FAILS DH INDICATOR ON TEST$
     48 GO TO, STEP 102316$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102316$
 120552 INDICATE, MESSAGE, FAILS AUDIO WARN OFF TEST AT 480 FT ALT$
     56 GO TO, STEP 102328$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102336$
 120560 INDICATE, MESSAGE, FAILS DH INDICATOR RESET TEST$
     64 GO TO, STEP 102344$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102360$
 120568 INDICATE, MESSAGE, FAILS AUDIO WARN RESET AT 480FT ALT$
     72 GO TO, STEP 102372$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102396$
 120576 INDICATE, MESSAGE, FAILS AUDIO WARN ON TEST AT 200 FT$
     80 GO TO, STEP 102404$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102412$
 120584 INDICATE, MESSAGE, FAILS AUDIO WARN RESET AT 200 FT DH ALT$
     88 GO TO, STEP 102420$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102444$
 120592 INDICATE, MESSAGE, FAILS AUDIO WARN TEST AT 200 FT DH ALT$
     96 GO TO, STEP 102456$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102464$
 120600 INDICATE, MESSAGE, FAILS DH INDICATOR ON TEST AT 200 DH ALT$
     04 GO TO, STEP 102472$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102472$
 120608 INDICATE, MESSAGE, FAILS AUDIO WARN OFF TEST AT 200 DH ALT$
     12 GO TO, STEP 102484$
```

ATLAS Test Program
Figure 717 (Sheet 19 of 20)

```
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102492$
 120616 INDICATE, MESSAGE, FAILS DH INDICATOR RESET TEST AT 200 FT
        DH ALT$
     20 GO TO, STEP 102500$
B       THIS BRANCH IS THE NOGO OF DECISION HEIGHT AND AUDIO WARN
        TEST STEP 102516$
 120624 INDICATE, MESSAGE,FAILS AUDIO WARN RESET AT 200 FT DH ALT$
     28 GO TO, STEP 102528$
B       THIS BRANCH IS THE NOGO OF COMPARATOR WARN TEST STEP 102816$
 120632 INDICATE, MESSAGE, FAILS COMPARATOR WARN TEST$
     36 GO TO, STEP 102824$
B       THIS BRANCH IS THE NOGO OF COMPARATOR WARN TEST STEP 102824$
 120640 INDICATE, MESSAGE, FAILS SELF TEST$
     44 GO TO, STEP 102848$
B       THIS BRANCH IS THE NOGO OF COMPARATOR WARN TEST STEP 102836$
 120648 INDICATE, MESSAGE, FAILS SELF TEST OFF TEST$
     52 GO TO, STEP 102848$
B       THIS BRANCH IS THE NOGO OF COMPARATOR WARN TEST STEP 102852$
 120656 INDICATE, MESSAGE, FAILS#FLAG ALARM ON TEST$
     60 GO TO, STEP 102864$
B       THIS BRANCH IS THE NOGO OF COMPARATOR WARN TEST STEP 102884$
 120664 INDICATE, MESSAGE, FAILS ALT TAPE RETURN TO ALT TEST$
     68 GO TO, STEP 120896$
B       THIS BRANCH IS THE NOGO OF REMOTE POWER-ON TEST STEP 103116$
 120672 INDICATE, MESSAGE, FAILS REMOTE POWER-ON TEST$
     76 GO TO, STEP 103136$
B       THIS BRANCH IS THE NOGO OF REMOTE POWER-ON TEST STEP 103144$
 120680 INDICATE, MESSAGE, FAILS REMOTE POWER-ON TEST$
     84 GO TO, STEP 103156$
B       THIS BRANCH IS THE NOGO OF ALTITUDE TRIP TEST STEP 103320$
 120688 INDICATE, MESSAGE, FAILS ALT TRIP NO 6 TEST$
     92 GO TO, STEP 103332$
B       THIS BRANCH IS THE NOGO OF ALTITUDE TRIP TEST STEP  103364$
 120696 INDICATE, MESSAGE, FAILS DH INDICATOR ON  REGARDLESS OF ALT
        TEST$
 120700 GO TO, STEP 103376$
B       THIS BRANCH IS THE NOGO OF ALTITUDE TRIP TEST STEP 103376$
 120704 INDICATE, MESSAGE, FAILS RESET TEST$
     08 REMOVE, SHORT, CNX HI J2-L LO J2-V$
     12 GO TO, STEP 103448$
B       THIS BRANCH IS THE NOGO OF ALTITUDE TRIP TEST STEP 103396$
 120716 INDICATE, MESSAGE, FAILS NO 7 ALT TRIP TEST$
     20 GO TO, STEP 103408$
B       THIS BRANCH IS THE NOGO OF ALTITUDE TRIP TEST STEP 103424$
 120724 INDICATE, MESSAGE, FAILSNO 8 ALTITUDE TRIP TEST$
     28 GO TO, STEP 103436$
B       THIS BRANCH IS THE NOGO OF SELF TEST CIRCUIT TEST STEP
        103608 AND STEP 103616$
 120732 INDICATE, MESSAGE, FAILS SELF TEST CIRCUIT TEST$
     36 GO TO, STEP 103700$
```

ATLAS Test Program
Figure 717 (Sheet 20 of 20)

TROUBLESHOOTING

1. General

This section presents the schematic diagram for the 339H-2 Radio Altitude Indicator. All detailed troubleshooting procedures are presented on the test and troubleshooting flow diagrams in the Testing section.

2. Modification History

Modification history for the 339H-2 Radio Altitude Indicator is presented in figure 801A. This history is provided to aid the technician in understanding the reason for issuing a service bulletin and to describe the changes to the equipment.

3. Schematic Diagram

Refer to the following matrix to determine the location of the schematic diagram for each configuration of the 339H-2 Radio Altitude Indicator.

CPN 522-4825-	-002	-004	-005	-006	-007 ①	-008 ②
FIGURE NO	801	801	802	803	803	801

NOTES:

① All references to CPN 522-4825-006 apply also to CPN 522-4825-007 unless otherwise specified.

② All references to CPN 522-4825-002 apply also to CPN 522-4825-008 unless otherwise specified.

SERVICE BULLETIN	REASON/DESCRIPTION
1	Not issued
2	522-4825-002. This modification describes an improvement in the use of the ac servo amplifier TB2U2 (350-0083-030). It reduces the power supply ripple level, reducing the idle current, motor heat, and power consumption. Some ground wire rerouting is also done.
3	Superseded by service bulletin no 5.
4	522-4825-002, -004. This is a modification for replacing gear clusters, necessitated by a broken or split nylon gear causing inaccurate motor-generator coupling to gear train and/or lockup of gear train.
5	522-4825-002, -004. Supersedes SB 3. This modification provides additional decision height circuits to permit turning off decision height indicator on the ground and at altitudes below selected decision height.
6	522-4825-002, -004. This modification ensures proper operation of indicator through a brief power interruption with the addition of three capacitors.
7	522-4825-005. This modification ensures proper operation of indicator through a brief power interruption with the addition of three capacitors.
8	522-4825-005. This modification replaces the tape storage roller assembly with a new assembly that has a DH tape with a Day-Glo arc yellow index symbol. A new DH knob is installed with a Day-Glo arc yellow symbol.
9	522-4825-002, -004, -005. This modification eliminates the lighting of the DH indicator at altitudes above the DH setting which momentarily occurs in some aircraft installations when a transient reaches the comparator warn input.
10	522-4825-002, -004. This modification directly replaces original DH counter (CPN 015-3184-010) with an improved DH counter (CPN 015-3184-020).
11	522-4825-002, -004, -005, -006. This modification improves the life of tape storage roller gears by replacing aluminum gear material with stainless steel.
12	522-4825-006, -007. This modification changes circuits to prevent the DH lamp from lighting during takeoff.

Modification History
Figure 801A (Sheet 1 of 3)

SERVICE BULLETIN	REASON/DESCRIPTION
13	522-4825-002, -004. This modification connects the sensor circuit grounds to reduce the potential voltage difference between the two and eliminate DH light and tone from giving false indications.
14	522-4825-005. This modification eliminates false indications on the DH indicator light by connecting the split grounds of the 339H-2 and by adding a capacitor and resistor.
15	522-4825-006. This modification adds isolation diodes and charge capacitors to the DH light and trip indicator power sources to furnish circuit power during short duration interruptions and amplitude variations. This prevents nuisance DH-light indications on the indicator and false altitude trip activations above 2500 feet caused by power interruptions and voltage variations. (This is applicable when unit is used with an 860F-1 Radio Altimeter that has SB 39 installed).
16	522-4825-006. This modification adds a filter capacitor to the ±15-V power supply which eliminates interference to the audio warning signal caused by noise on the 115-V dc supply lines.
17	Superseded by SB 19.
18	522-4825-002, -004, -005, -006. Modification protects transformers in the rt unit and the 399H-2 when excessive current is produced in the 26-V ac power circuit of the 339H-2 by adding fuse F1 to 26-V ac power circuit.
19	522-4825-006. Supersedes SB 17. This modification provides a means of testing the DH circuit while aircraft is on the ground by adding a switching circuit with a time delay.
20	522-4825-002, -004, -005, -006. This modification replaces fuse F1, installed in SB 18, with a higher current rated fuse. This is necessary because, under certain conditions, the test set will drive the indicator pointer against its stop, allowing the ac current to peak too high and consequently blow the present fuse.
21	522-4825-002, -004, -005, -006. This modification removes fuse F1 from the 26-V ac power circuit, installed by SB 18 or 20 which is no longer required if SB 53 in the 860F-1 Radio Altimeter/Receiver Transmitter is incorporated.
22	522-4825-002. (Optional.) This modification consists of replacing the +5-V lamps with +28-V lamps for the DH lighting.

Modification History
Figure 801A (Sheet 2)

SERVICE BULLETIN	REASON/DESCRIPTION
23	522-4825-006. This modification improves maintainability of existing features of the 339H-2 Radio Altitude Indicator, and provides compatibility with all three self-test altitudes supplied by the 860F-1 Altimeter.
24	522-4825-006. This modification provides an improved -15-V dc power supply by isolating diode VR6 from C40 capacitor failures. In the past configuration, failure of C40 was a direct cause for failure of zener diode VR6.

Modification History
Figure 801A (Sheet 3)

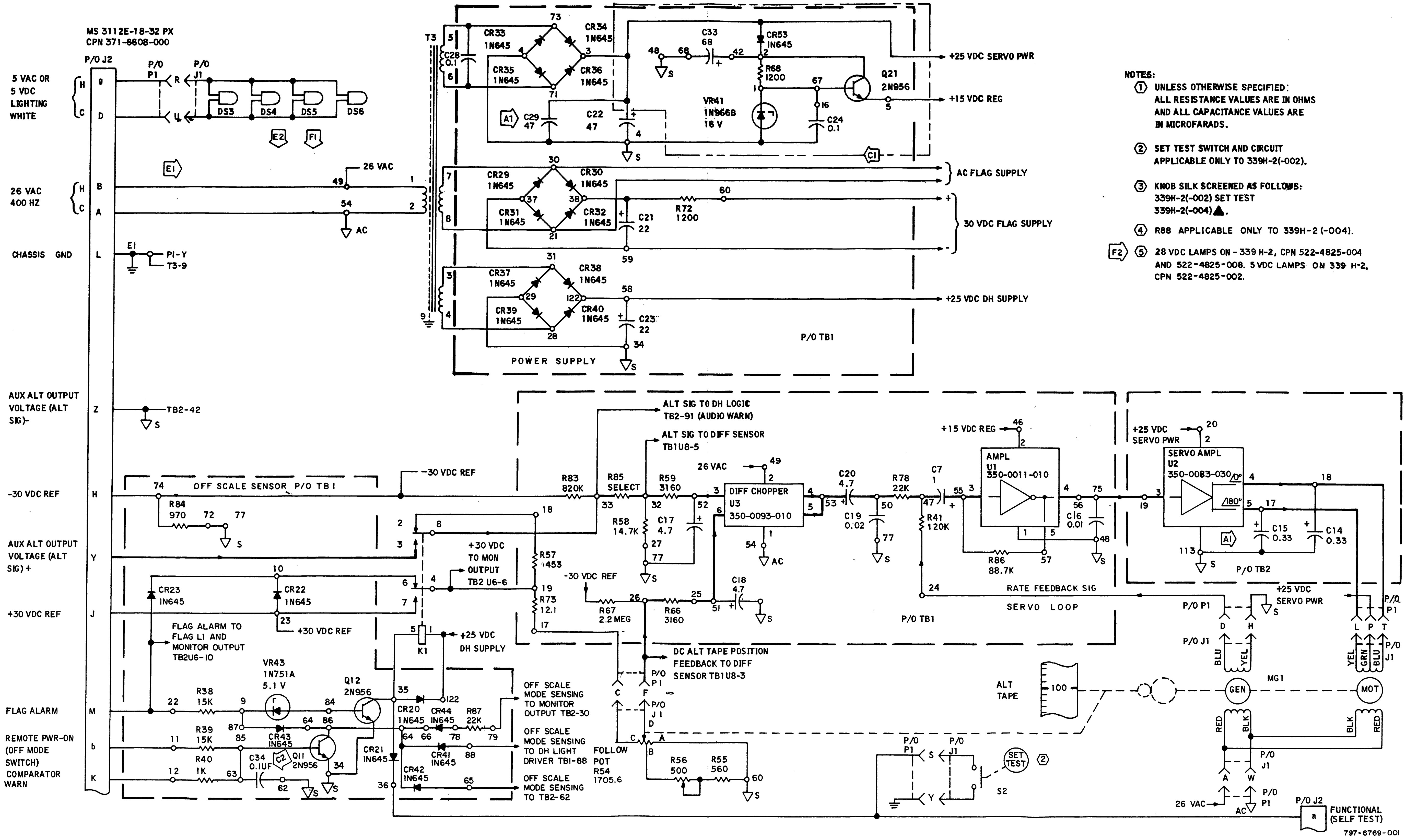
SCHEMATIC CHANGES

SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1	A1	Changed C14 and C15 from 2.5 μF to 0.33 μF and added C29, 47 μF. Reduce servo amplifier current (522-4825-002 only).	2	MCN 961
2	B1	Added DH light extinguish circuit.	3	MCN 1113
		Provides optional turnoff of DH indicator below DH.	5	MCN 1116
1, 2, 3	C1	Added TB1CR52, CR53, C32, C33, and TB2CR16, C28. Ensure operation through brief power interruption. Refer to sheet 3 for circuits before modification.	6	Serno 1196 and above
1	C2	Added TB1C34. Provide transient protection.	9	Serno 1300 and above
2	D1	Added R94 to eliminate the DH light and tone from giving false indications.	13	Serno 1590 and above
2	D2	Added C36 to eliminate the DH light and tone from giving false indications.	13	Serno 1590 and above
1	E1	Added fuse F1, 1 A, to protect transformer.	18	Serno 1825 and above, -002 only Serno 1859 and above, -004 only
1	E2	Increased fuse F1 from 1 to 1.5 A to avoid burnout during test.	20	Serno 2078 and above, -002 only Serno 2214 and above, -004 only
2		Changed CR46 to CR48 and labeled CR15 as type 1N695 to correct schematic error.		

339H-2 Radio Altitude Indicator, CPN 522-4825-002, 522-4825-004 and 522-4825-008, Schematic Diagram
Figure 801 (Sheet A)

SCHEMATIC CHANGES

SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1	F1	Deleted fuse F1 since service bulletin 53 in 860F-1 rt unit removes the need for a protective fuse.	21	Serno 2493 and above, -002 only
1	F2	Added 339H-2 CPN 522-4825-008 to schematic.		Serno 2216 and above, -004 only


MS 3112E-18-32 PX
CPN 371-6608-000
P/O J2
5 VAC OR 5 VDC LIGHTING WHITE
26 VAC 400 HZ
CHASSIS GND
AUX ALT OUTPUT VOLTAGE (ALT SIG)-
-30 VDC REF
AUX ALT OUTPUT VOLTAGE (ALT SIG)+
+30 VDC REF
FLAG ALARM
REMOTE PWR-ON (OFF MODE SWITCH)
COMPARATOR WARN
DS3
DS4
DS5
DS6
T3
POWER SUPPLY
+25 VDC SERVO PWR
+15 VDC REG
AC FLAG SUPPLY
30 VDC FLAG SUPPLY
+25 VDC DH SUPPLY
P/O TB1
Q21 2N956
VR41 1N966B 16 V
OFF SCALE SENSOR P/O TB1
ALT SIG TO DH LOGIC TB2-91 (AUDIO WARN)
ALT SIG TO DIFF SENSOR TB1U8-5
DIFF CHOPPER U3 350-0093-010
AMPL U1 350-0011-010
SERVO AMPL U2 350-0083-030
+30 VDC TO MON OUTPUT TB2 U6-6
FLAG ALARM TO FLAG L1 AND MONITOR OUTPUT TB2U6-10
VR43 1N751A 5.1 V
Q12 2N956
Q11 2N956
K1
OFF SCALE MODE SENSING TO MONITOR OUTPUT TB2-30
OFF SCALE MODE SENSING TO DH LIGHT DRIVER TB1-88
OFF SCALE MODE SENSING TO TB2-62
FOLLOW POT R54 1705.6
DC ALT TAPE POSITION FEEDBACK TO DIFF SENSOR TB1U8-3
RATE FEEDBACK SIG
SERVO LOOP
P/O TB2
ALT TAPE
MG1
GEN
MOT
SET TEST
S2
FUNCTIONAL (SELF TEST)
797-6769-001

NOTES:

① UNLESS OTHERWISE SPECIFIED:
ALL RESISTANCE VALUES ARE IN OHMS
AND ALL CAPACITANCE VALUES ARE
IN MICROFARADS.

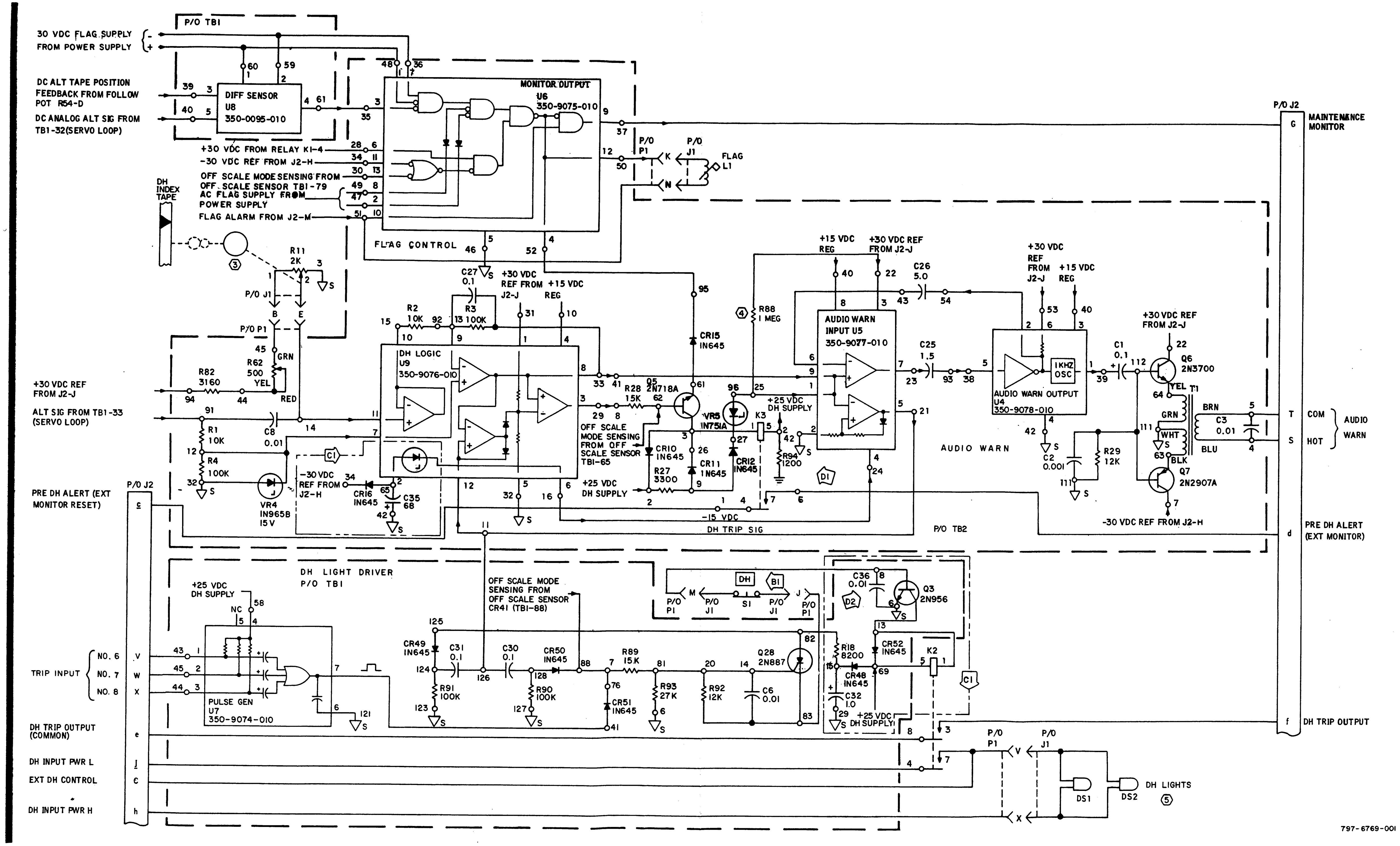
② SET TEST SWITCH AND CIRCUIT
APPLICABLE ONLY TO 339H-2(-002).

③ KNOB SILK SCREENED AS FOLLOWS:
339H-2(-002) SET TEST
339H-2(-004)▲.

④ R88 APPLICABLE ONLY TO 339H-2 (-004).

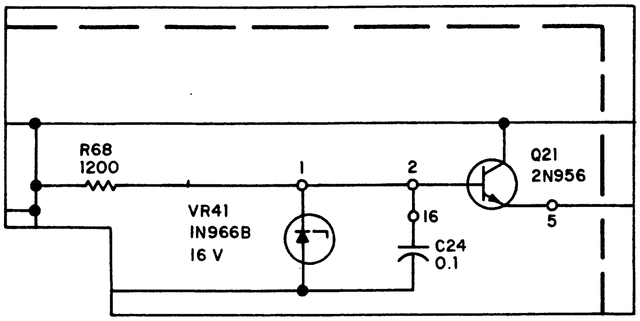
F2 ⑤ 28 VDC LAMPS ON - 339 H-2, CPN 522-4825-004
AND 522-4825-008. 5 VDC LAMPS ON 339 H-2,
CPN 522-4825-002.

339H-2 Radio Altitude Indicator, CPN 522-4825-002,
522-4825-004 and 522-4825-008,
Schematic Diagram
Figure 801 (Sheet 1 of 3)



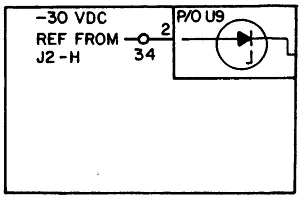
339H-2 Radio Altitude Indicator, CPN 522-4825-002,
522-4825-004 and 522-4825-008,
Schematic Diagram

C1



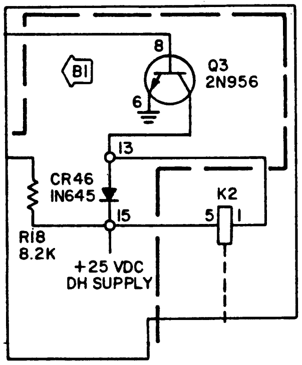
CIRCUIT BEFORE S.B. NO. 6

C1

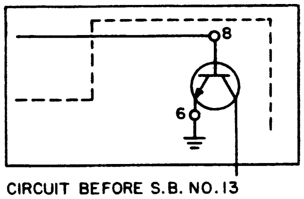


CIRCUIT BEFORE S.B. NO. 6

C1



CIRCUIT BEFORE S.B. NO. 6



CIRCUIT BEFORE S.B. NO. 13

797-6769

339H-2 Radio Altitude Indicator, CPN 522-4825-002, 522-4825-004 and 522-4825-008, Schematic Diagram
Figure 801 (Sheet 3)

SCHEMATIC CHANGES

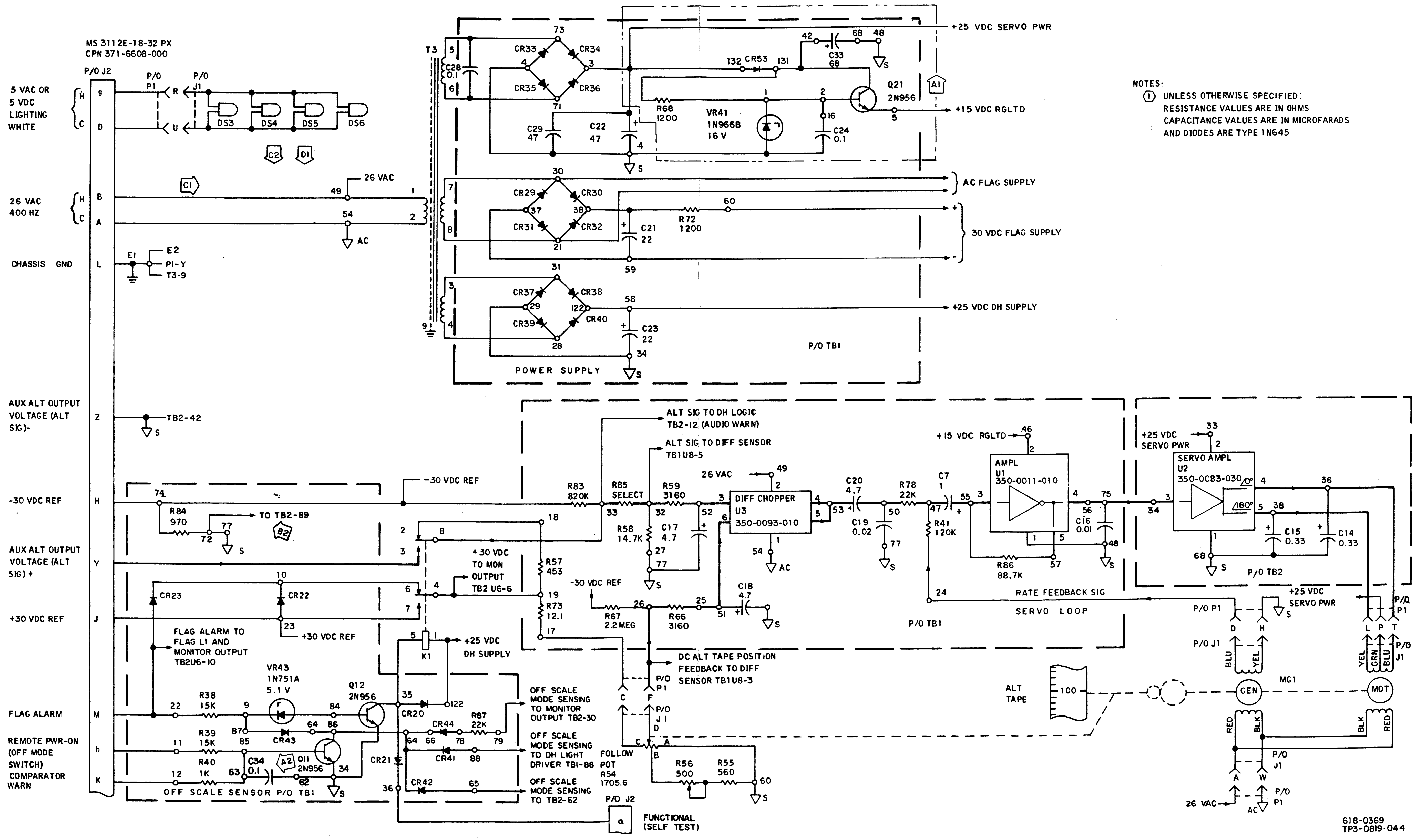
SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1, 2, 3	A1	Added TB1CR52, CR53, C32, C33, and TB2CR16, C33. Ensure operation through brief power interruption. Refer to sheet 3 for circuits before modification.	7	Serno 1196 and above
1	A2	Added capacitor TB1C34. Provide transient protection.	9	Serno 1300 and above
2	B1	Added C54.	14	Serno 1635 and above
2	B2	Added circuit from TB1-72 to TB2-89.	14	Serno 1635 and above
2	B3	Added R111.	14	Serno 1635 and above
1	C1	Added fuse F1, 1A, to protect transformer.	18	Serno 1650 and above
1	C2	Increased fuse F1 from 1 to 1.5 A to avoid burnout during test.	20	Serno 2013 and above
1	D1	Deleted fuse F1 since SB 53 in 860F-1 rt unit removes the need for protective fuse.	21	Serno 2395 and above
2	D2	Relay K2 shown in deenergized state, and inverting/noninverting inputs of TB2U20A reversed to correct schematic errors.		All models

339H-2 Radio Altitude Indicator, CPN 522-4825-005,
Schematic Diagram
Figure 802 (Sheet A)

SCHEMATIC CHANGES

SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1, 2, 3	A1	Added TB1CR52, CR53, C32, C33, and TB2CR16, C33. Ensure operation through brief power interruption. Refer to sheet 3 for circuits before modification.	6	Serno 1196 and above
1	A2	Added capacitor TB1C34. Provide transient protection.	9	Serno 1300 and above
2	B1	Added C54.		Serno 1705 and above
2	B2	Added circuit from TB1-72 to TB2-89.		Serno 1705 and above
2	B3	Added R111.		Serno 1705 and above

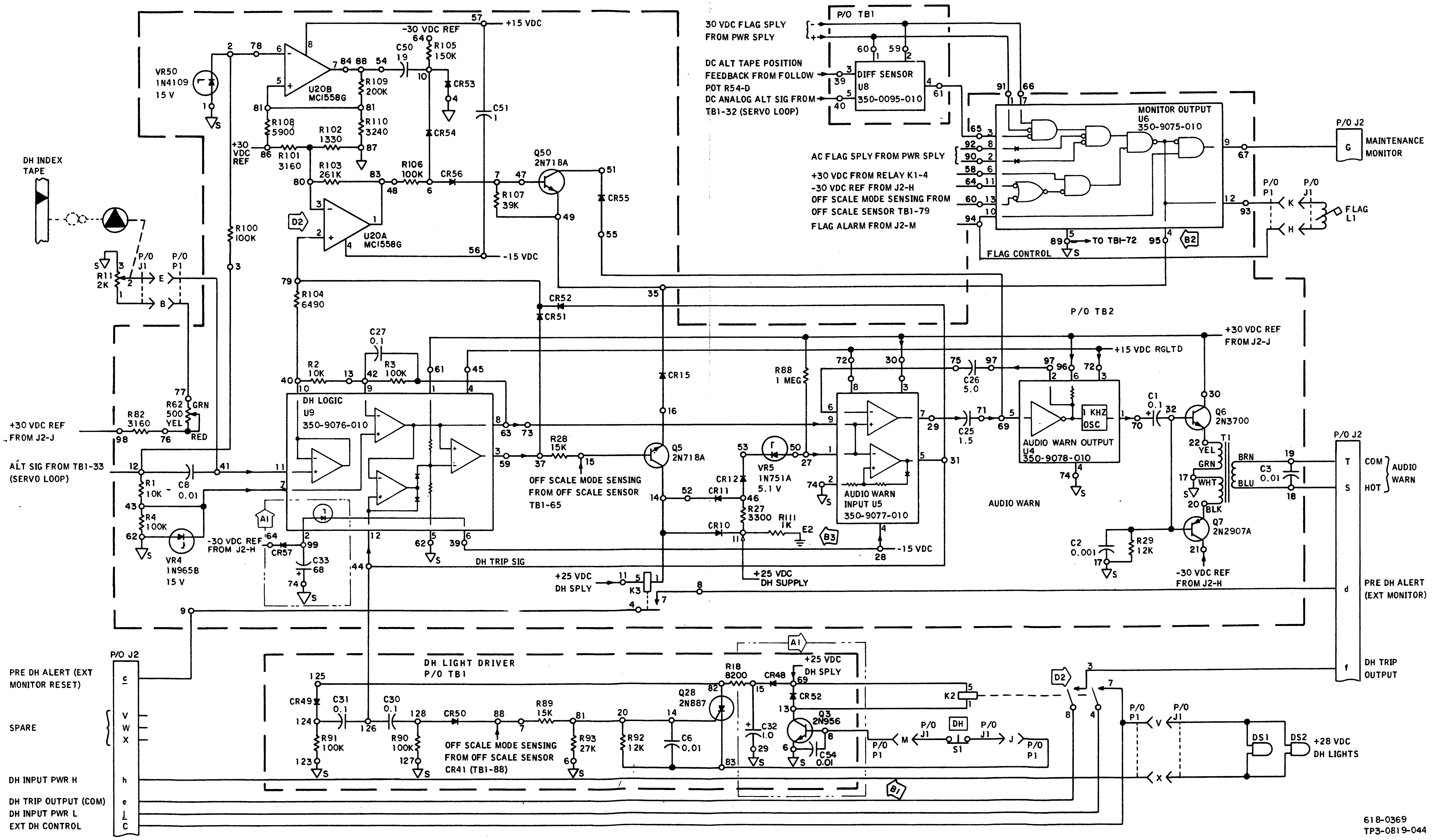
339H-2 Radio Altitude Indicator, CPN 522-4825-005,
Schematic Diagram
Figure 802 (Sheet A)



NOTES:

① UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS CAPACITANCE VALUES ARE IN MICROFARADS AND DIODES ARE TYPE 1N645

339H-2 Radio Altitude Indicator, CPN 522-4825-005, Schematic Diagram
Figure 802 (Sheet 1 of 3)



339H-2 Radio Altitude Indicator, CPN 522-4825-005,
Schematic Diagram
Figure 802 (Sheet 2)

SCHEMATIC CHANGES

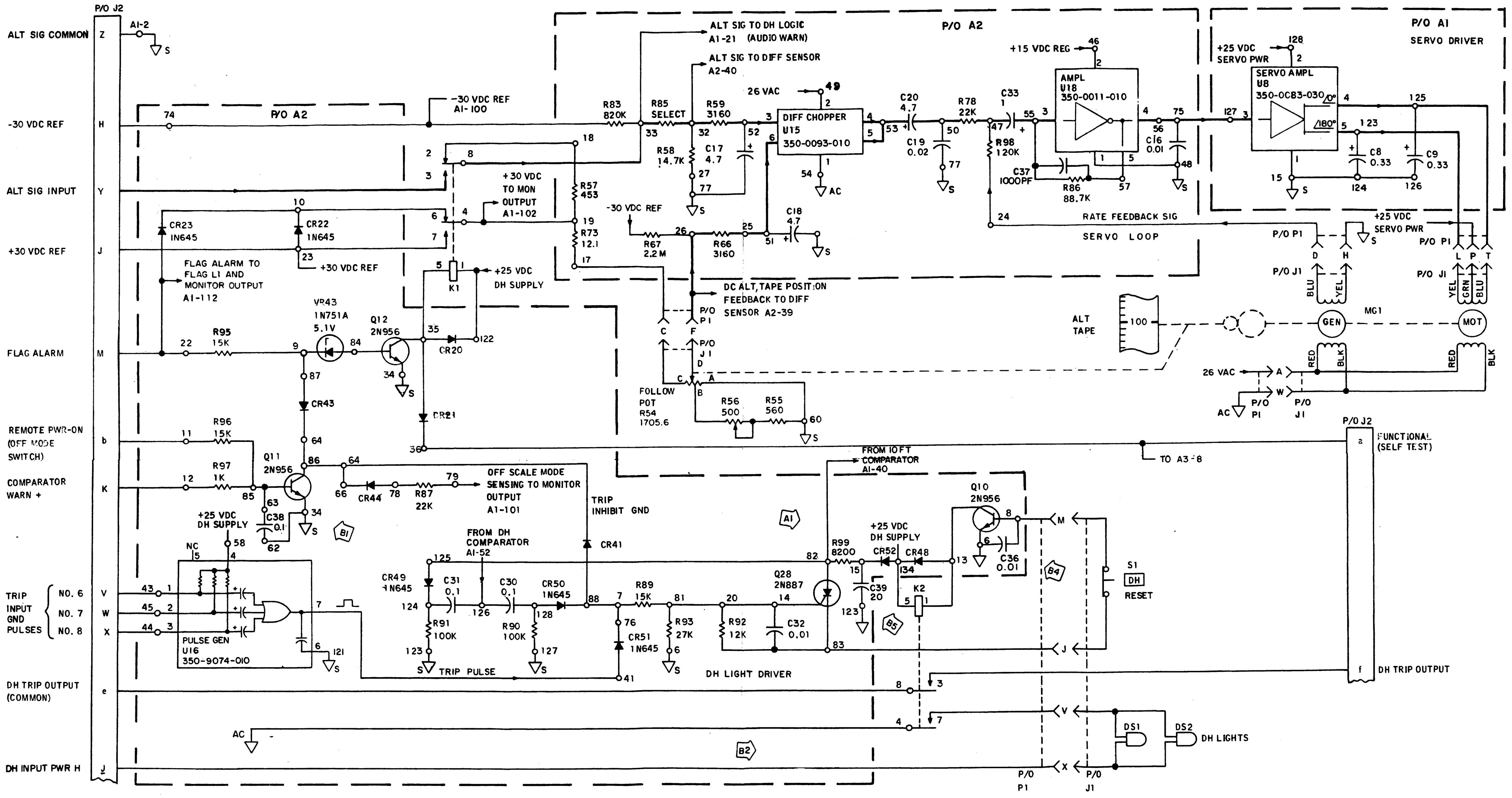
SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
1	A1	Moved circuit to A1-55 from terminal 8 to terminal 82, A1-40.	12	Serno 1509 and above
2	A2	Changed circuit CR6 and R12, added CR14.	12	Serno 1509 and above
1	B1	Added capacitor C38.	15	Serno 1705 and above
1	B2	Deleted use of terminals 62 and 63 for DH lights.	15	Serno 1705 and above
3	B3	Moved R68, added C54, deleted R200, added CR53.	15	Serno 1705 and above
1	B4	Added C36.	15	Serno 1705 and above
1	B5	Added C39, CR52 revised.	15	Serno 1705 and above
2	C1	Added C35, 0.01 μF, to ±15-V power supply to eliminate interference to the audio warning signal.	16	Serno 1705 and above
2	C2	Added A3, K3, and CR56 (1N645) to enable testing of the aircraft while on the ground.	17	Serno 2015 and above
3	C3	Added fuse F1, 1 A, to protect transformer.	18	Serno 1831 and above, -006 only A11, -007 only
2	C4	Changed A3R201 from 270 to 100 kΩ. Moved wire at K3 pin 8 to K3 pin 7. Moved wire at junction of R201 and C56 to K3 pin 8 (SB 17 installed). Added A3, K3, and CR56 (1N645) to enable testing of the aircraft while on the ground (supersedes SB 17).	19	Serno 2199, 2208, and 2280 and above

339H-2 Radio Altitude Indicator, CPN 522-4825-006 and 522-4825-007, Schematic Diagram
Figure 803 (Sheet A)

SCHEMATIC CHANGES

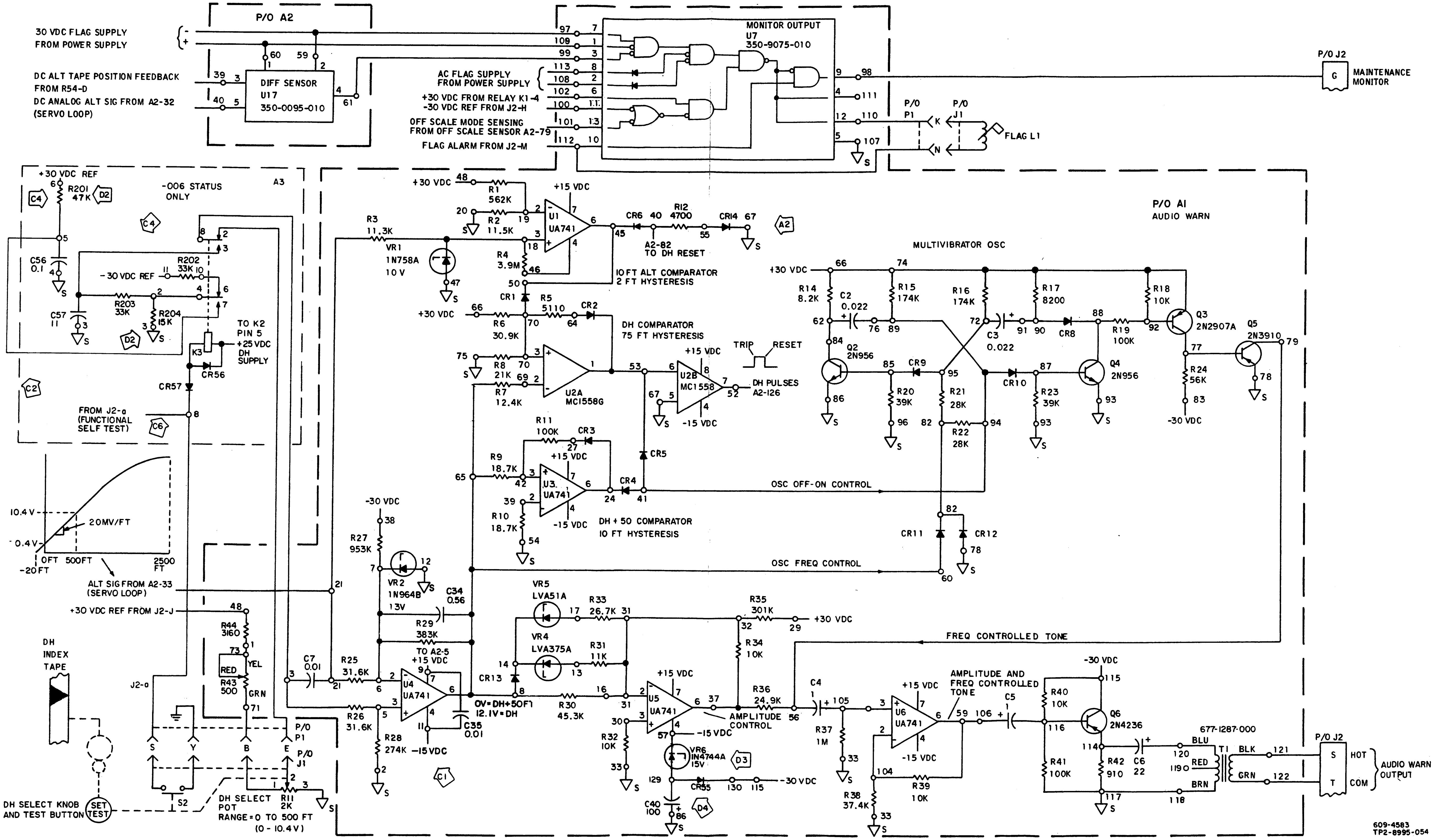
SHEET	REV IDENT	DESCRIPTION OF REVISION AND REASON FOR CHANGE	SERVICE BULLETIN	EFFECTIVITY
3	C5	Increased fuse F1 from 1 to 1.5 A to avoid burnout during test.	20	Serno 2304 and above
2	C6	Deleted CR58 to allow test set to test indicator.		-006, REV LTR M A3, REV LTR B
1, 2, 3		Changed pulse generator module number from U7 to U16. Changed terminal board numbers. C40 is 100 μF. Changed polarity of CR6 to correct schematic errors.		
3	D1	Removed fuse F1 since SB 53 in 860F-1 rt unit removes the need for protective fuse.	21	Serno 2216 and above.
2	D2	Changed resistor R201 from 100 to 47 kΩ. Changed R204 from 10 to 15 kΩ. These changes provide 100- and 150-foot 860F-1 self-test altitude compatibility.	23	Serno 2680 and above
4		R201 is 270 kΩ. This change made to correct schematic error.		All
2	D3	Changed VR6 from type IN965B to IN4744A to improve reliability.		CPN 609-4742-001 REV H
2	D4	Relocated VR6 from terminals D and 115 to 57 and 129 to provide a more reliable -15-V power supply.		Serno 3106 and above, CPN 522-4825-006 REV L; CPN 609 4742-001 REV K
2		Schematic correction made by reversing C40 to show correct polarity.		All

339H-2 Radio Altitude Indicator, CPN 522-4825-006
and 522-4825-007, Schematic Diagram
Figure 803 (Sheet B)

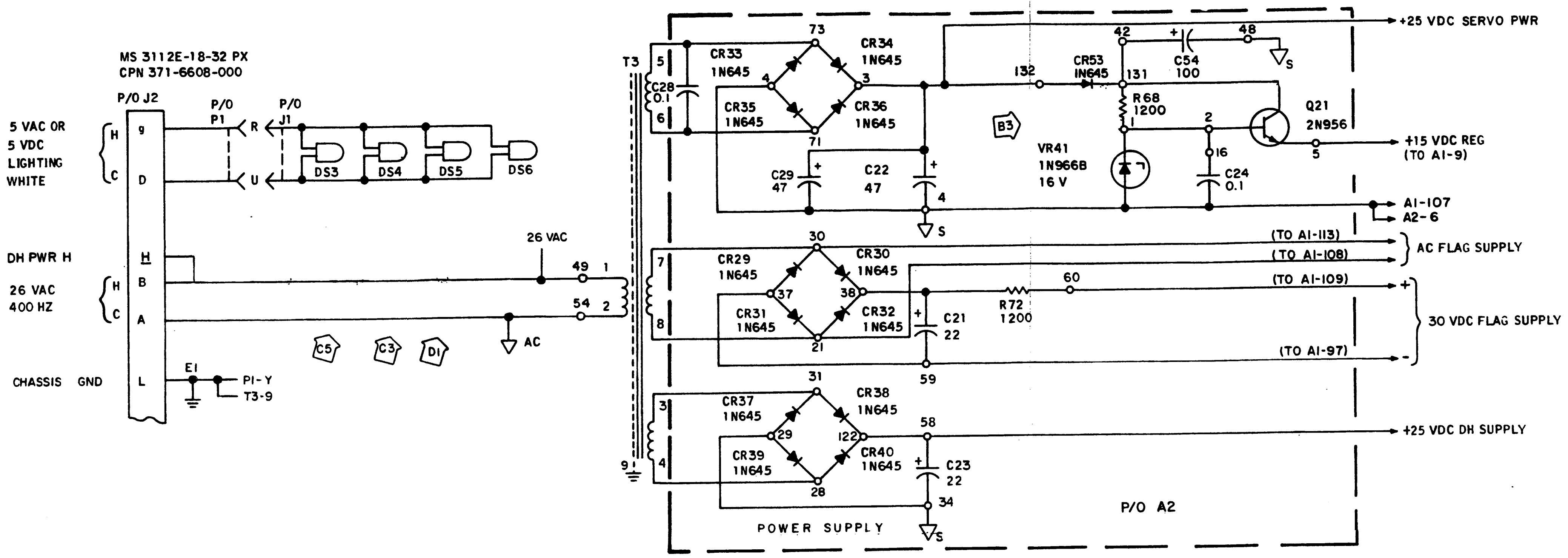


609-4583
TP2-8995-064

339H-2 Radio Altitude Indicator, CPN 522-4825-006 and 522-4825-007, Schematic Diagram
Figure 803 (Sheet 1 of 4)



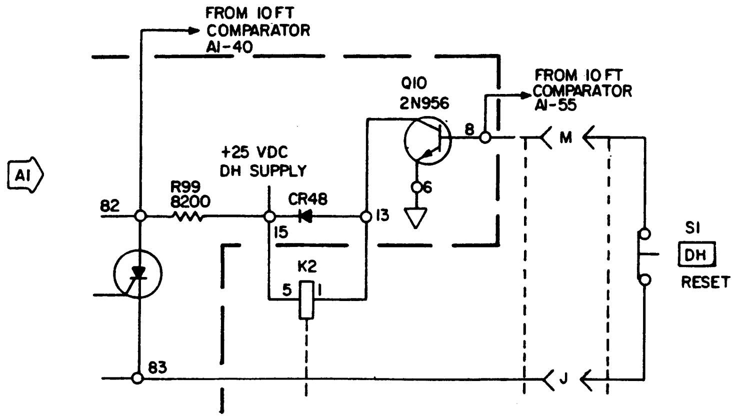
339H-2 Radio Altitude Indicator, CPN 522-4825-006 and 522-4825-007, Schematic Diagram
Figure 803 (Sheet 2)



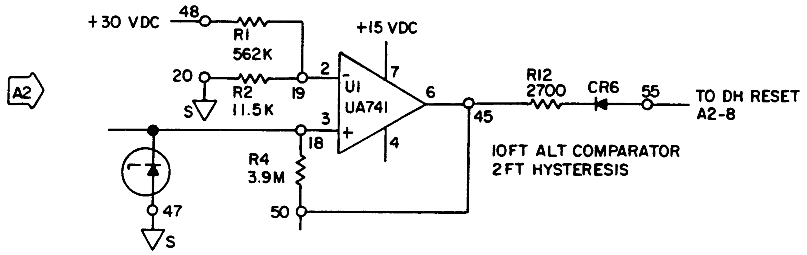
NOTE:
UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS AND DIODES ARE TYPE 1N4454.

609-4583
TP2-8995-054

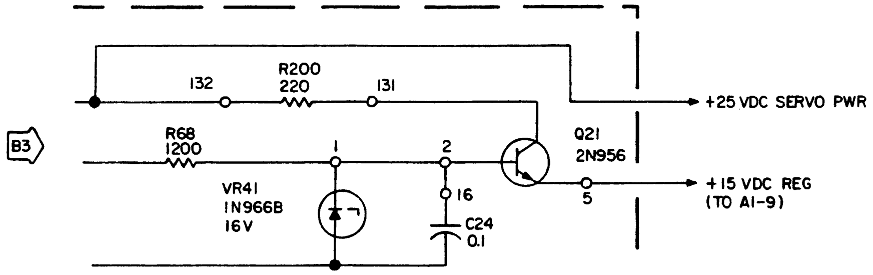
339H-2 Radio Altitude Indicator, CPN 522-4825-006 and 522-4825-007, Schematic Diagram
Figure 803 (Sheet 3)



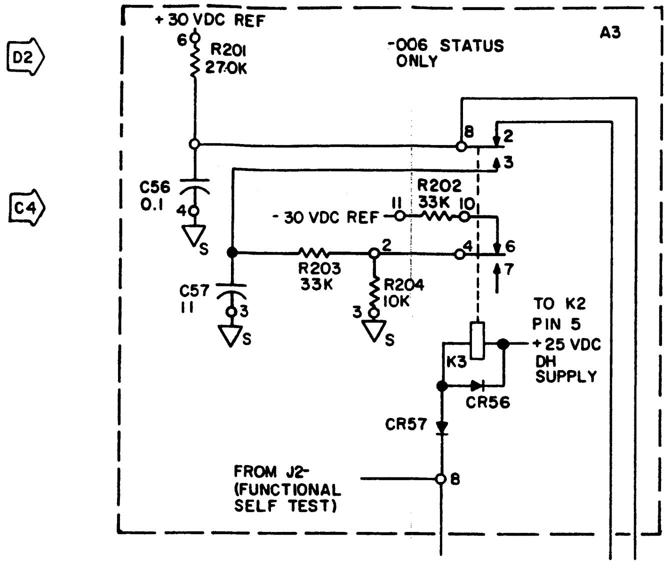
CIRCUIT BEFORE S.B. NO. 12



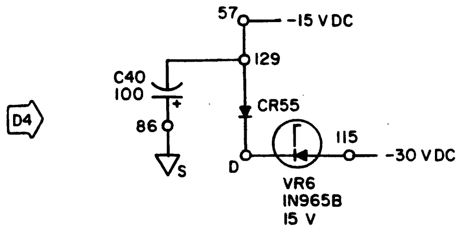
CIRCUIT BEFORE S.B. NO. 12



CIRCUIT BEFORE S.B. NO. 15



CIRCUIT BEFORE S.B. NO. 19



CIRCUIT BEFORE SB 24

609-4583
TP2-8995-054

339H-2 Radio Altitude Indicator, CPN 522-4825-006 and 522-4825-007, Schematic Diagram
Figure 803 (Sheet 4)

STORAGE INSTRUCTIONS

1. Storage Preparation

Make certain that all terminal boards are secured to indicator and that the dust cover has been installed on the indicator and sealed.

2. Storage

Store the indicator in an area where the temperature remains within +2 to +43 °C (+35 to +110 °F) and with a relative humidity that does not exceed 75 percent. For long-term storage, the indicator should be placed in the original shipping carton.

SPECIAL TOOLS, FIXTURES, AND TEST EQUIPMENT

1. General

This section presents a list of special tools, fixtures, and equipment required to overhaul, test, and troubleshoot the 339H-2 Radio Altitude Indicator.

2. Test Equipment Required

Figure 1001 lists the standard and special test equipment and tools required to test, troubleshoot, and adjust the 339H-2 Radio Altitude Indicator. The parameters for the test equipment are listed in the define statements of the ATLAS test program (figure 717). To determine the parameter of a piece of test equipment, use the ATLAS designator listed in figure 1001 and refer to ATLAS program define for the designator. Any equivalent test equipment may be used if it meets the required parameters specified in the ATLAS test program.

3. Test Fixture

A. General

The test fixture provides an easy method of switching inputs and outputs during testing. The fixture also provides indicators for observing specific outputs from the unit.

B. Fabrication

Fabricate the test fixture as shown in schematic diagram and suggested front panel layout. Refer to figure 1002 for schematic diagram and figure 1003 for suggested front panel layout. The components and parts required are listed in figure 1004.

C. Controls and Indicators

The controls and indicators and their functions are listed in figure 1005.

D. Testing and Troubleshooting

The testing and troubleshooting procedures for the test fixture are presented as a flow diagram in figure 1006. Refer to figure 701 for detailed information on using flow diagram procedures. The test fixture should be tested immediately after fabrication and after any repair to ensure operation during performance of test procedures.

4. Tape Winding

A. General

The tape winding fixture is used during the assembly procedures to install the altitude and DH index tapes. The fixture should be locally fabricated.

B. Fabrication

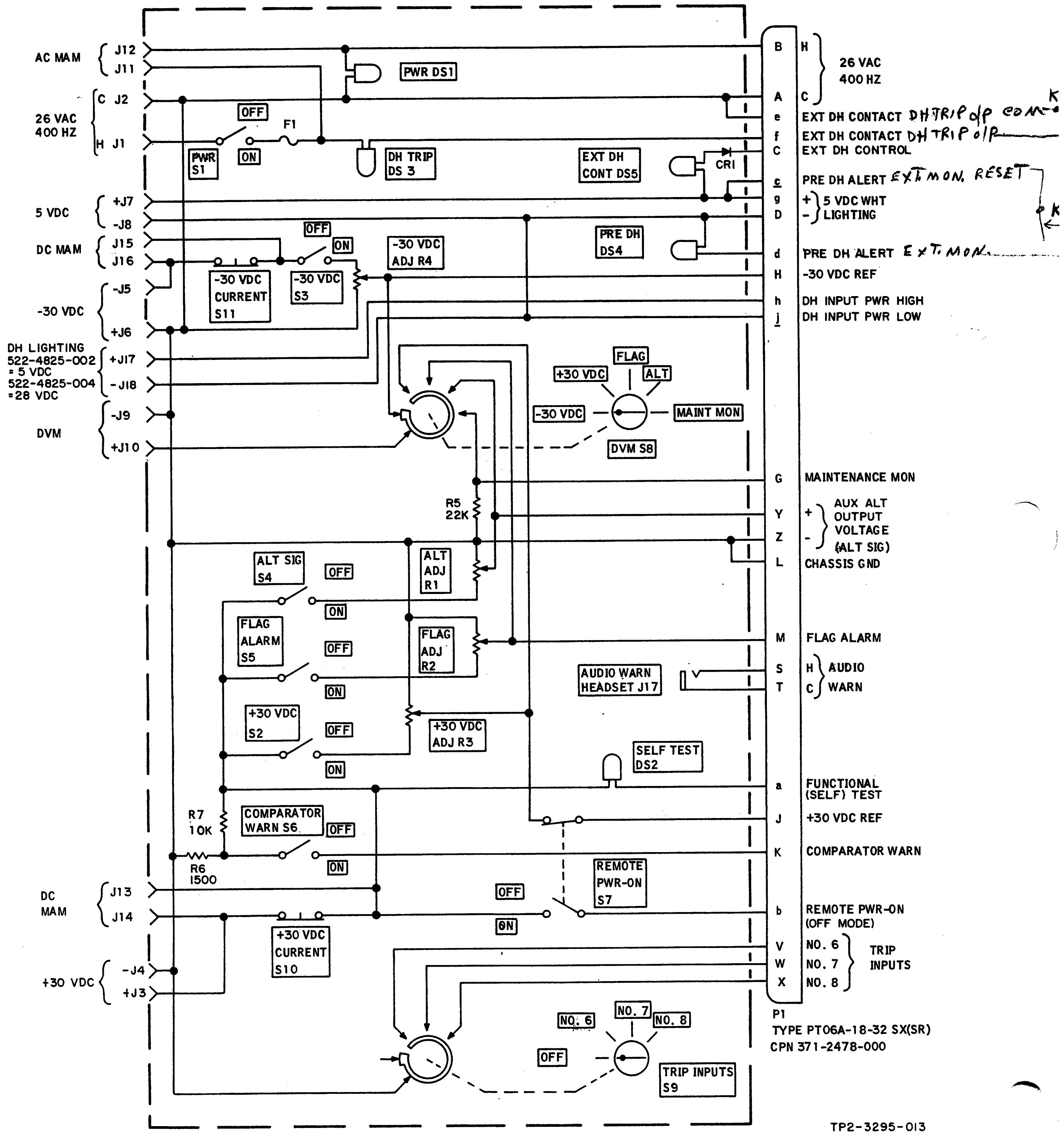
Refer to figure 1007 for detailed fabrication illustrations and parts required.

ITEM	ATLAS DESIGNATOR	FLOW DIAGRAM DESIGNATOR	REPRESENTATIVE TYPE
STANDARD			
26-Vac power supply	N3 AC POWER 26V	ACP-1	Bench supply or Superior Electric Powerstat
+30-Vdc power supply	N1 DC POWER	DCP-1	Hewlett-Packard 6202B
-30-Vdc power supply	N2 DC POWER	DCP-2	Hewlett-Packard 6202B
+5-Vdc power supply	N3 DC POWER	DCP-3	Any
0 to +32-Vdc power supply	N4 DC POWER		Hewlett-Packard 6202B
0 to +32-Vdc power supply	N6 DC STIM	DCS-1	Hewlett-Packard 6202B
0 to +32-Vdc power supply	N7 DC STIM	DCS-2	Hewlett-Packard 6112A
Digital voltmeter	N1 DCVM, N2 DCVM	DVM	Cimron 6753
Dc milliammeter	N1 DCMA	Dc milliammeter	Triplett Model 630NA
Ac milliammeter	N1 ACMA	ACMA-1	Simpson 57-1120
Continuity tester		Continuity tester	Triplett model 630NA

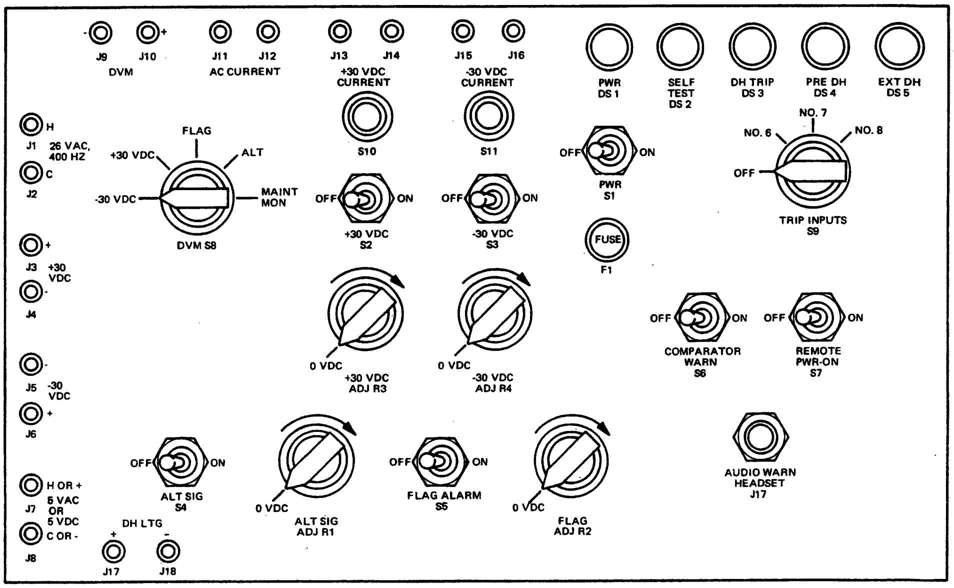
Tools, Fixtures, and Equipment
Figure 1001 (Sheet 1 of 2)

ITEM	ATLAS DESIGNATOR	FLOW DIAGRAM DESIGNATOR	REPRESENTATIVE TYPE
STANDARD (Cont)			
Torque watch		Torque watch	Waters 60004
Ac vtvm		Ac vtvm	Hewlett-Packard 400H
SPECIAL			
Test fixture		Test fixture	Fabricate as described in paragraph 3
Tape winding fixture		Tape winding	Fabricate as described in paragraph 4
Automatic test equipment	ATE		Collins TG 7104

Tools, Fixtures, and Equipment
Figure 1001 (Sheet 2 of 2)



Test Fixture, Schematic Diagram
Figure 1002



TP2-3296-013

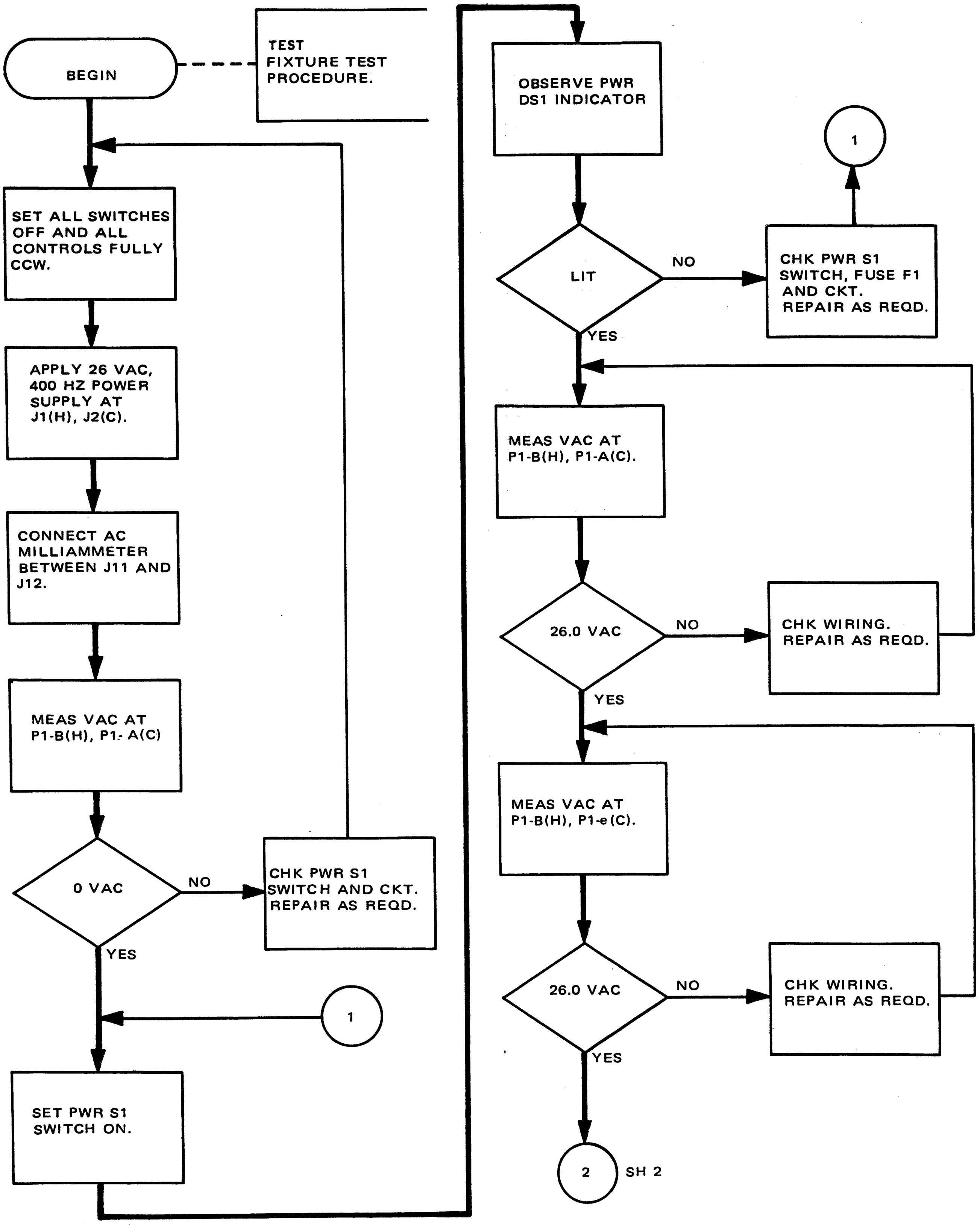
Test Fixture, Front Panel Layout, Typical
Figure 1003

QUANTITY	DESCRIPTION	COLLINS PART NUMBER
*9	Single binding post, J1, J3, J6, J7, J10, J12, J14, J15, and J17	372-1061-000
*9	Single binding post, J2, J4, J5, J8, J9, J11, J13, J16, and J18	372-1062-000
6	Switch, toggle, spst, S1, S2, S3, S4, S5, and S6	266-3072-000
1	Switch, toggle, dpdt, S7	266-3060-000
1	Switch, wafer, 6-position, S8	259-9036-001
1	Switch, wafer, 4-position, S9	259-9032-001
5	Lamp holders (T3-1/4)	262-0375-000
3	Lamps, no 327, DS1, DS2, and DS3	262-1106-000
2	Lamps, no 328, DS4 and DS5	262-0602-000
1	Fuseholder	265-1114-000
1	Fuse, 2 A	264-4070-000
3	Variable resistor, 10 kΩ, R2, R3, and R4	380-2679-000
1	Variable resistor, Helipot, 10 kΩ, R1	381-1735-010
1	Fixed resistor, 22 kΩ, 10%, 1/4 W, R5	745-0797-000
1	Fixed resistor, 1500 ohms, 10%, 1/4 W, R6	745-0755-000
1	Fixed resistor, 10 kΩ, 10%, 1/4 W, R7	745-0785-000
1	Connector, PT06A-18-32SX(SR), P1	371-2478-000
2	Lamp lens, jewel green, DS1 and DS2	262-0377-000
1	Lamp lens, jewel amber, DS3	262-0378-000
1	Lamp lens, jewel red, DS4	262-0376-000

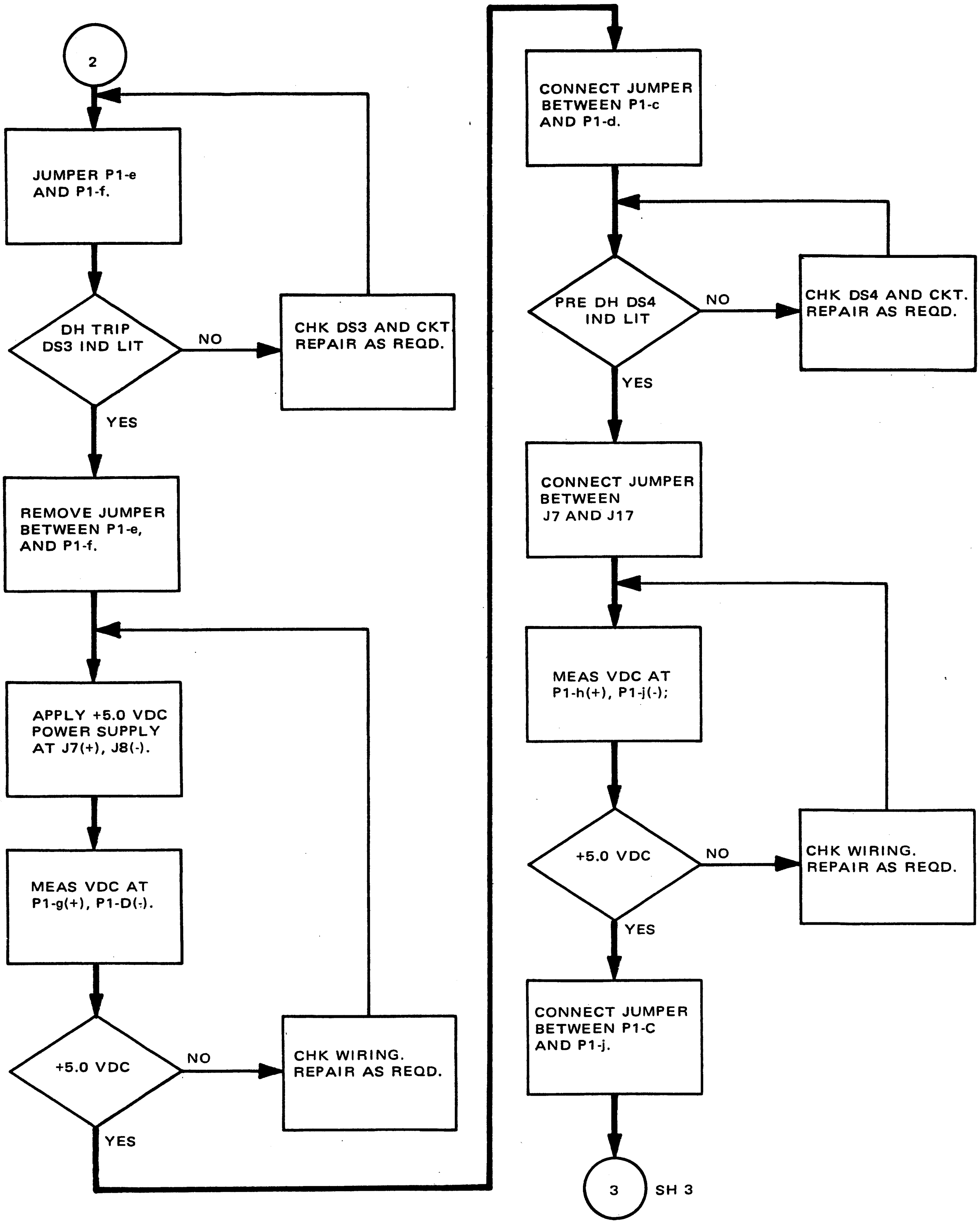
Test Fixture, Component and Parts List
Figure 1004 (Sheet 1 of 2)

CONTROL OR INDICATOR	SWITCH POSITION OR INDICATOR CONDITION	FUNCTION
-30 VDC CURRENT S11	Depressed	Connects external milliammeter in circuit to check -30-Vdc reference voltage current.
ALT ADJ R1	Variable	Adjusts altitude signal input to UUT.
FLAG ADJ R2	Variable	Adjusts flag alarm input to UUT.
+30 VDC ADJ R3	Variable	Adjusts +30-Vdc reference voltage to UUT.
-30 VDC ADJ R4	Variable	Adjusts -30-Vdc reference voltage to UUT.
PWR DS1	Lit	Indicates 26-Vac primary power is applied to UUT.
SELF TEST DS2	Lit	Indicates self-test output from UUT.
DH TRIP DS3	Lit	Indicates external DH output from UUT.
PRE DH DS4	Lit	Indicates pre DH alert output from UUT.
EXT DH DS4	Lit	Indicates external DH control output from UUT.

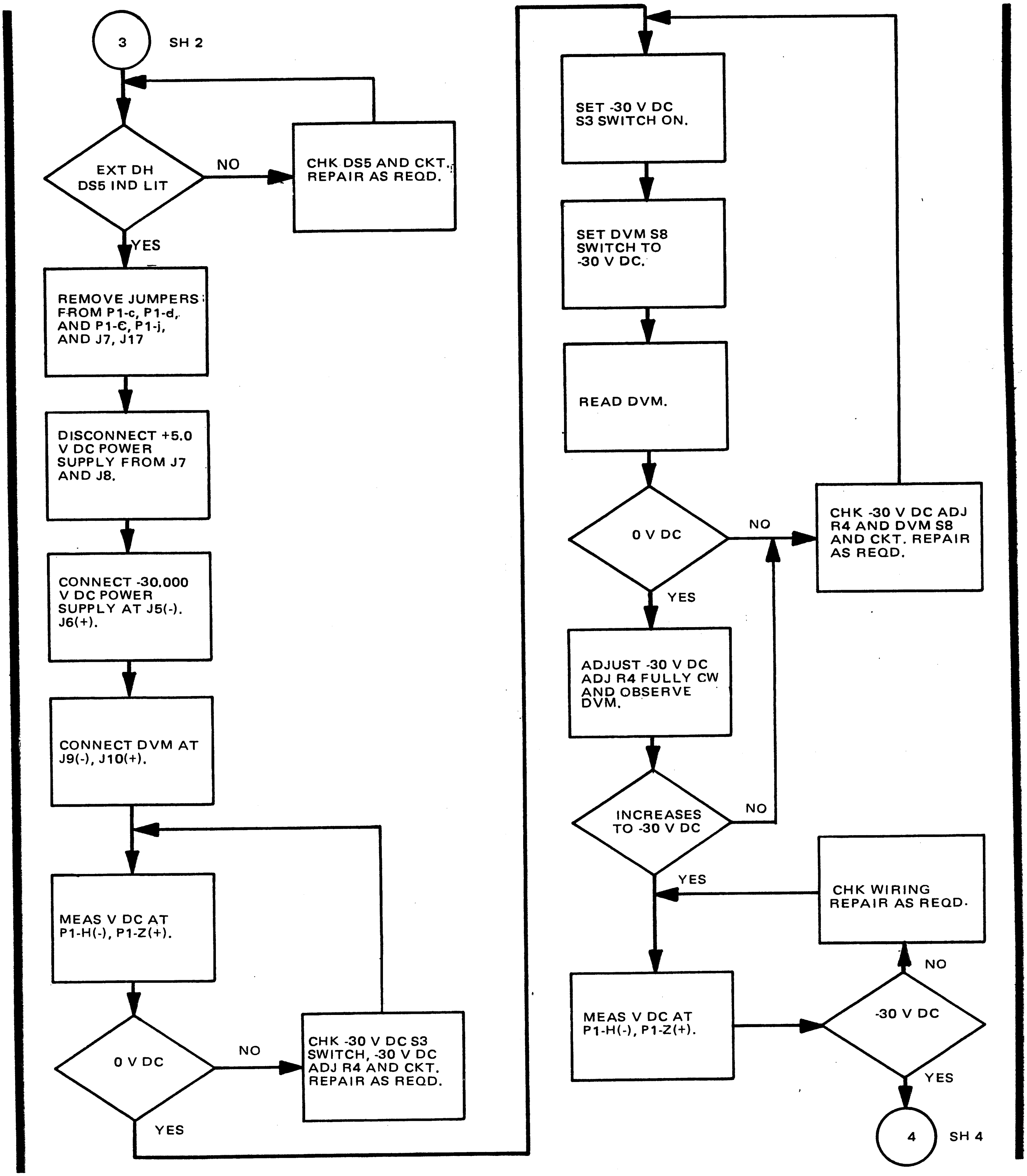
Test Fixture, Controls and Indicators
Figure 1005 (Sheet 3 of 3)


BEGIN
TEST FIXTURE TEST PROCEDURE.
SET ALL SWITCHES OFF AND ALL CONTROLS FULLY CCW.
APPLY 26 VAC, 400 HZ POWER SUPPLY AT J1(H), J2(C).
CONNECT AC MILLIAMMETER BETWEEN J11 AND J12.
MEAS VAC AT P1-B(H), P1- A(C)
0 VAC
NO
CHK PWR S1 SWITCH AND CKT. REPAIR AS REQD.
YES
1
SET PWR S1 SWITCH ON.
OBSERVE PWR DS1 INDICATOR
LIT
NO
CHK PWR S1 SWITCH, FUSE F1 AND CKT. REPAIR AS REQD.
1
YES
MEAS VAC AT P1-B(H), P1-A(C).
26.0 VAC
NO
CHK WIRING. REPAIR AS REQD.
YES
MEAS VAC AT P1-B(H), P1-e(C).
26.0 VAC
NO
CHK WIRING. REPAIR AS REQD.
YES
2
SH 2

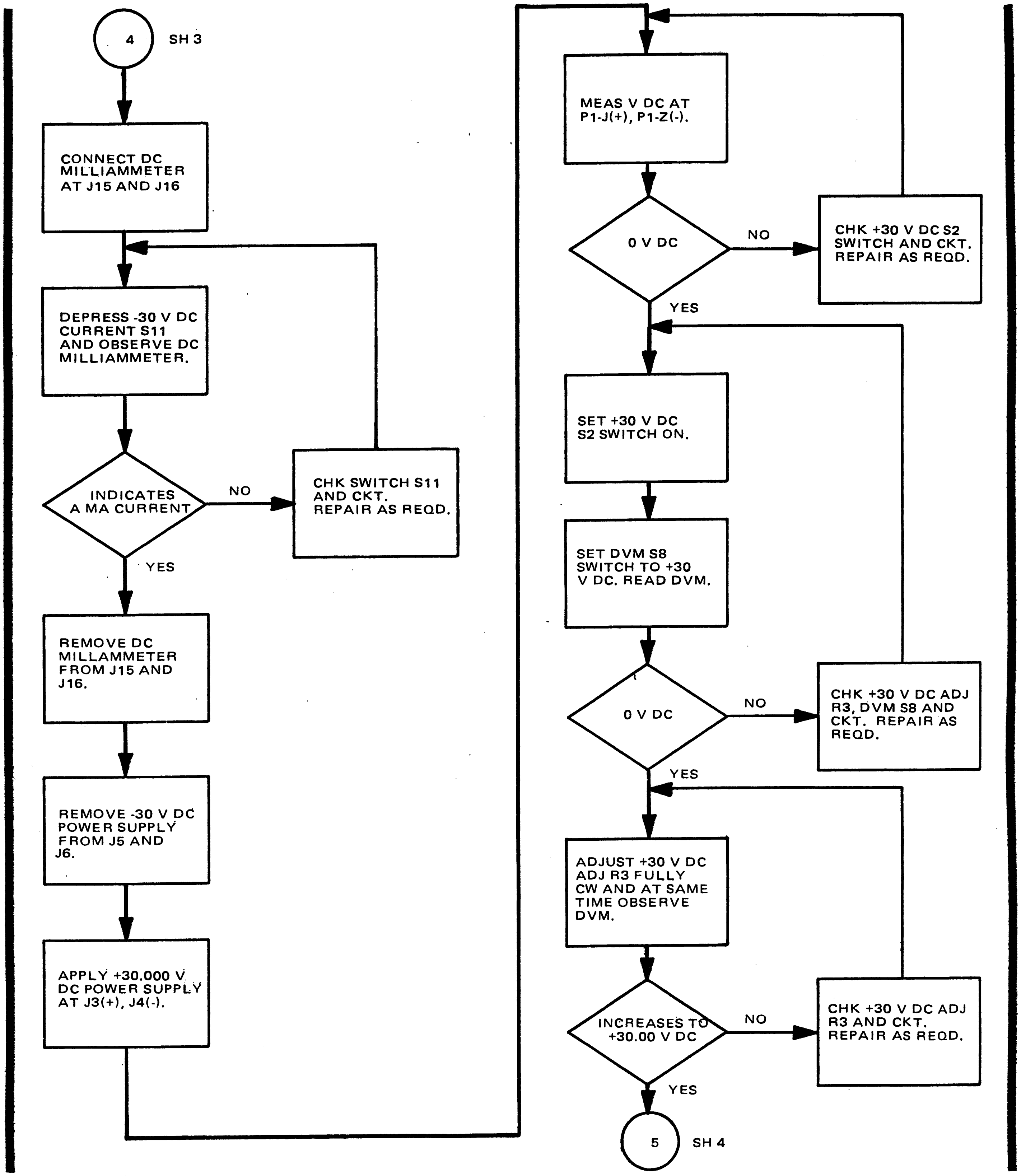
Test Fixture Test
Figure 1006 (Sheet 1 of 10)


2
JUMPER P1-e AND P1-f.
DH TRIP DS3 IND LIT
NO
CHK DS3 AND CKT REPAIR AS REQD.
YES
REMOVE JUMPER BETWEEN P1-e, AND P1-f.
APPLY +5.0 VDC POWER SUPPLY AT J7(+), J8(-).
MEAS VDC AT P1-g(+), P1-D(-).
+5.0 VDC
NO
CHK WIRING. REPAIR AS REQD.
YES
CONNECT JUMPER BETWEEN P1-c AND P1-d.
PRE DH DS4 IND LIT
NO
CHK DS4 AND CKT. REPAIR AS REQD.
YES
CONNECT JUMPER BETWEEN J7 AND J17
MEAS VDC AT P1-h(+), P1-j(-);
+5.0 VDC
NO
CHK WIRING. REPAIR AS REQD.
YES
CONNECT JUMPER BETWEEN P1-C AND P1-j.
3
SH 3

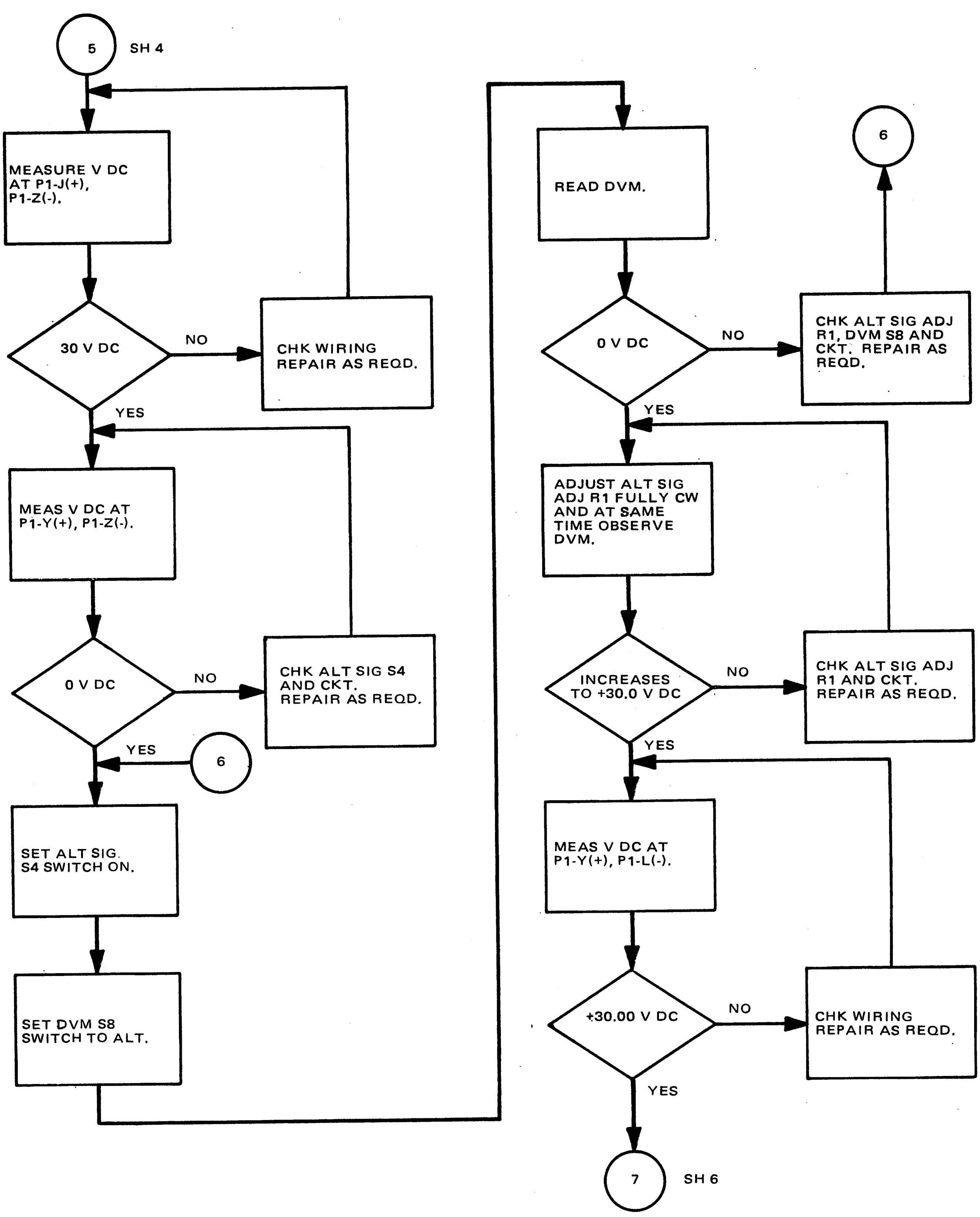
Test Fixture Test
Figure 1006 (Sheet 2)


3
SH 2
EXT DH DS5 IND LIT
NO
CHK DS5 AND CKT. REPAIR AS REQD.
YES
REMOVE JUMPERS FROM P1-c, P1-d, AND P1-e, P1-j, AND J7, J17
DISCONNECT +5.0 V DC POWER SUPPLY FROM J7 AND J8.
CONNECT -30.000 V DC POWER SUPPLY AT J5(-). J6(+).
CONNECT DVM AT J9(-), J10(+).
MEAS V DC AT P1-H(-), P1-Z(+).
0 V DC
NO
CHK -30 V DC S3 SWITCH, -30 V DC ADJ R4 AND CKT. REPAIR AS REQD.
YES
SET -30 V DC S3 SWITCH ON.
SET DVM S8 SWITCH TO -30 V DC.
READ DVM.
0 V DC
NO
CHK -30 V DC ADJ R4 AND DVM S8 AND CKT. REPAIR AS REQD.
YES
ADJUST -30 V DC ADJ R4 FULLY CW AND OBSERVE DVM.
INCREASES TO -30 V DC
NO
YES
CHK WIRING REPAIR AS REQD.
NO
MEAS V DC AT P1-H(-), P1-Z(+).
-30 V DC
YES
4
SH 4

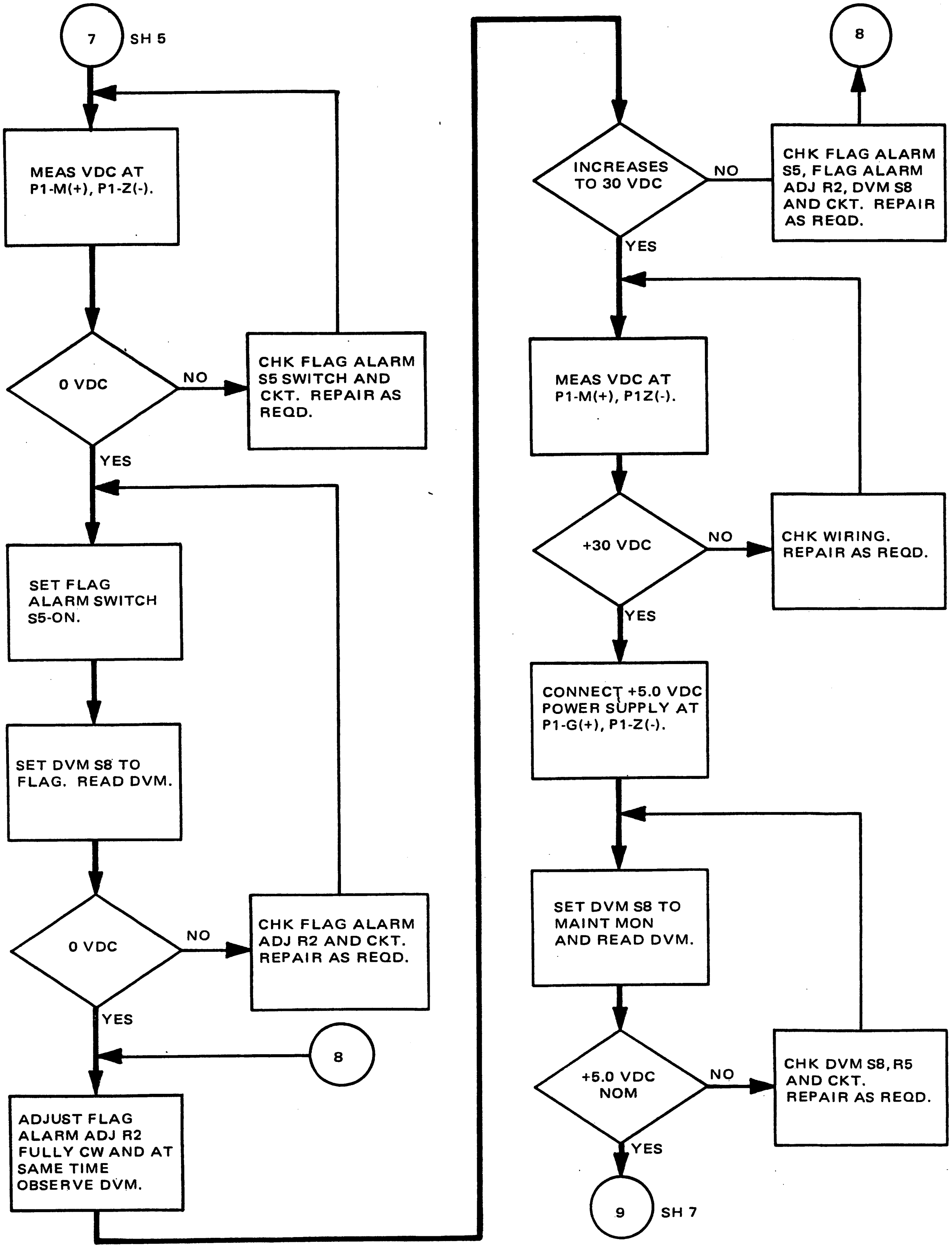
Test Fixture Test
Figure 1106 (Sheet 3)


4
SH 3
CONNECT DC MILLIAMMETER AT J15 AND J16
DEPRESS -30 V DC CURRENT S11 AND OBSERVE DC MILLIAMMETER.
INDICATES A MA CURRENT
NO
CHK SWITCH S11 AND CKT. REPAIR AS REQD.
YES
REMOVE DC MILLAMMETER FROM J15 AND J16.
REMOVE -30 V DC POWER SUPPLY FROM J5 AND J6.
APPLY +30.000 V DC POWER SUPPLY AT J3(+), J4(-).
MEAS V DC AT P1-J(+), P1-Z(-).
0 V DC
NO
CHK +30 V DC S2 SWITCH AND CKT. REPAIR AS REQD.
YES
SET +30 V DC S2 SWITCH ON.
SET DVM S8 SWITCH TO +30 V DC. READ DVM.
0 V DC
NO
CHK +30 V DC ADJ R3, DVM S8 AND CKT. REPAIR AS REQD.
YES
ADJUST +30 V DC ADJ R3 FULLY CW AND AT SAME TIME OBSERVE DVM.
INCREASES TO +30.00 V DC
NO
CHK +30 V DC ADJ R3 AND CKT. REPAIR AS REQD.
YES
5
SH 4

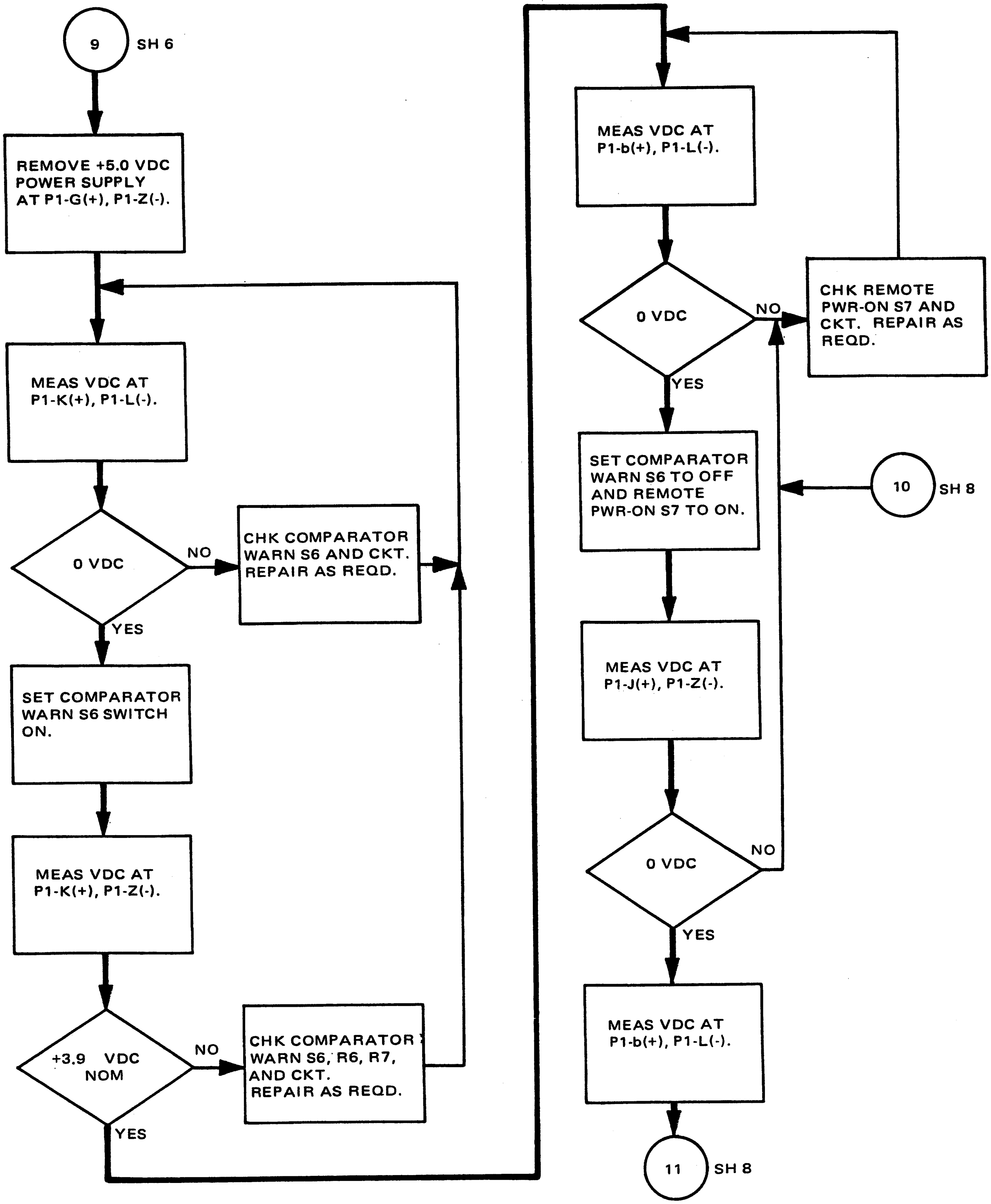
Test Fixture Test
Figure 1006 (Sheet 4)


5
SH 4
MEASURE V DC AT P1-J(+), P1-Z(-).
30 V DC
NO
CHK WIRING REPAIR AS REQD.
YES
MEAS V DC AT P1-Y(+), P1-Z(-).
0 V DC
NO
CHK ALT SIG S4 AND CKT. REPAIR AS REQD.
YES
6
SET ALT SIG. S4 SWITCH ON.
SET DVM S8 SWITCH TO ALT.
READ DVM.
0 V DC
NO
CHK ALT SIG ADJ R1, DVM S8 AND CKT. REPAIR AS REQD.
6
YES
ADJUST ALT SIG ADJ R1 FULLY CW AND AT SAME TIME OBSERVE DVM.
INCREASES TO +30.0 V DC
NO
CHK ALT SIG ADJ R1 AND CKT. REPAIR AS REQD.
YES
MEAS V DC AT P1-Y(+), P1-L(-).
+30.00 V DC
NO
CHK WIRING REPAIR AS REQD.
YES
7
SH 6

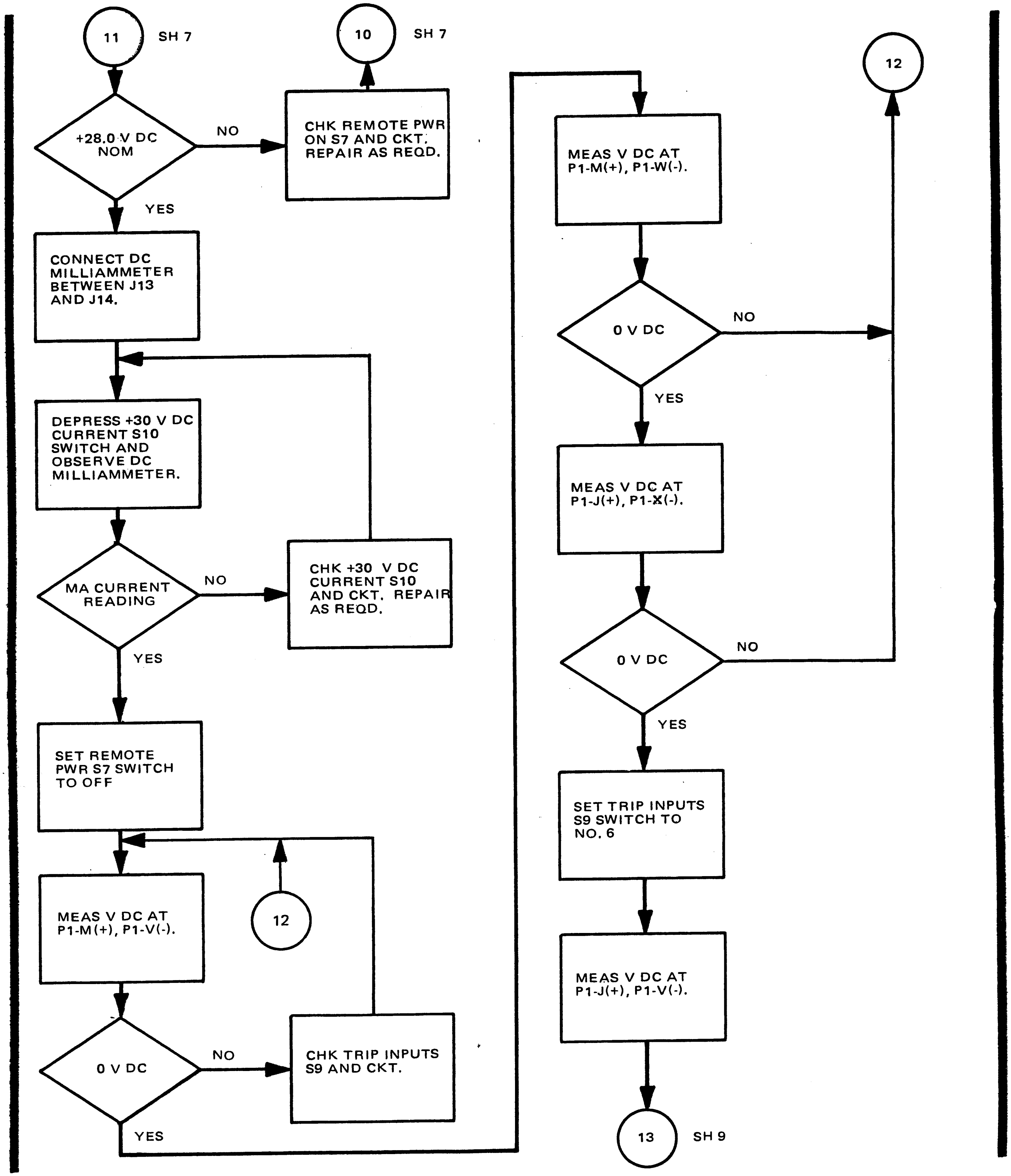
Test Fixture Test
Figure 1006 (Sheet 5)


7
SH 5
MEAS VDC AT P1-M(+), P1-Z(-).
0 VDC
NO
CHK FLAG ALARM S5 SWITCH AND CKT. REPAIR AS REQD.
YES
SET FLAG ALARM SWITCH S5-ON.
SET DVM S8 TO FLAG. READ DVM.
0 VDC
NO
CHK FLAG ALARM ADJ R2 AND CKT. REPAIR AS REQD.
YES
8
ADJUST FLAG ALARM ADJ R2 FULLY CW AND AT SAME TIME OBSERVE DVM.
INCREASES TO 30 VDC
NO
CHK FLAG ALARM S5, FLAG ALARM ADJ R2, DVM S8 AND CKT. REPAIR AS REQD.
8
YES
MEAS VDC AT P1-M(+), P1Z(-).
+30 VDC
NO
CHK WIRING. REPAIR AS REQD.
YES
CONNECT +5.0 VDC POWER SUPPLY AT P1-G(+), P1-Z(-).
SET DVM S8 TO MAINT MON AND READ DVM.
+5.0 VDC NOM
NO
CHK DVM S8, R5 AND CKT. REPAIR AS REQD.
YES
9
SH 7

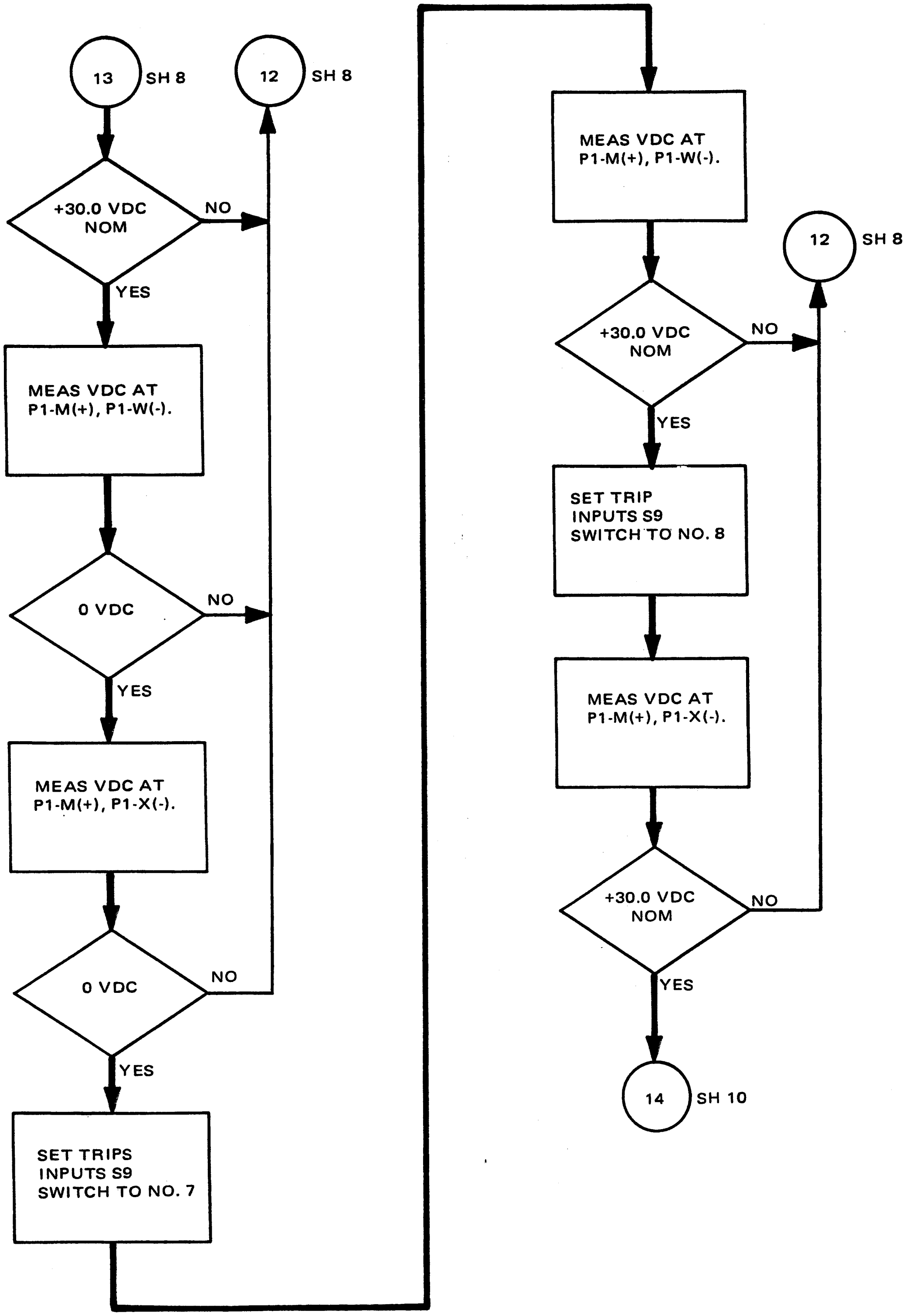
Test Fixture Test
Figure 1006 (Sheet 6 of 10)


9
SH 6
REMOVE +5.0 VDC POWER SUPPLY AT P1-G(+), P1-Z(-).
MEAS VDC AT P1-K(+), P1-L(-).
0 VDC
NO
CHK COMPARATOR WARN S6 AND CKT. REPAIR AS REQD.
YES
SET COMPARATOR WARN S6 SWITCH ON.
MEAS VDC AT P1-K(+), P1-Z(-).
+3.9 VDC NOM
NO
CHK COMPARATOR WARN S6, R6, R7, AND CKT. REPAIR AS REQD.
YES
MEAS VDC AT P1-b(+), P1-L(-).
0 VDC
NO
CHK REMOTE PWR-ON S7 AND CKT. REPAIR AS REQD.
YES
SET COMPARATOR WARN S6 TO OFF AND REMOTE PWR-ON S7 TO ON.
10
SH 8
MEAS VDC AT P1-J(+), P1-Z(-).
0 VDC
NO
YES
MEAS VDC AT P1-b(+), P1-L(-).
11
SH 8

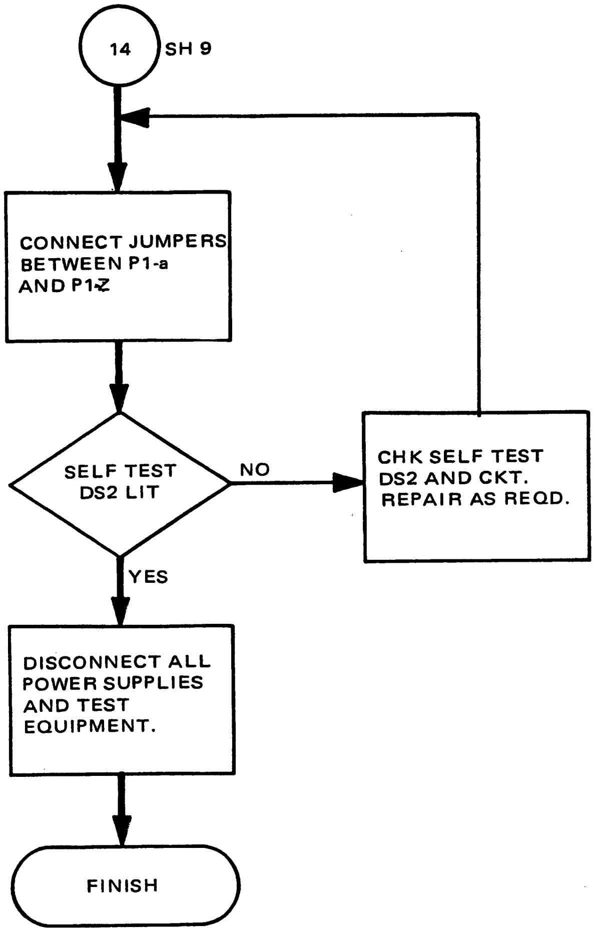
Test Fixture Test
Figure 1006 (Sheet 7)


11
SH 7
10
SH 7
12
+28.0 V DC NOM
NO
CHK REMOTE PWR ON S7 AND CKT. REPAIR AS REQD.
YES
CONNECT DC MILLIAMMETER BETWEEN J13 AND J14.
DEPRESS +30 V DC CURRENT S10 SWITCH AND OBSERVE DC MILLIAMMETER.
MA CURRENT READING
NO
CHK +30 V DC CURRENT S10 AND CKT. REPAIR AS REQD.
YES
SET REMOTE PWR S7 SWITCH TO OFF
MEAS V DC AT P1-M(+), P1-V(-).
12
0 V DC
NO
CHK TRIP INPUTS S9 AND CKT.
YES
MEAS V DC AT P1-M(+), P1-W(-).
0 V DC
NO
YES
MEAS V DC AT P1-J(+), P1-X(-).
0 V DC
NO
YES
SET TRIP INPUTS S9 SWITCH TO NO. 6
MEAS V DC AT P1-J(+), P1-V(-).
13
SH 9

Test Fixture Test
Figure 1006 (Sheet 8)


13
SH 8
12
SH 8
+30.0 VDC NOM
NO
YES
MEAS VDC AT P1-M(+), P1-W(-).
0 VDC
NO
YES
MEAS VDC AT P1-M(+), P1-X(-).
0 VDC
NO
YES
SET TRIPS INPUTS S9 SWITCH TO NO. 7
MEAS VDC AT P1-M(+), P1-W(-).
12
SH 8
+30.0 VDC NOM
NO
YES
SET TRIP INPUTS S9 SWITCH TO NO. 8
MEAS VDC AT P1-M(+), P1-X(-).
+30.0 VDC NOM
NO
YES
14
SH 10

Test Fixture Test
Figure 1006 (Sheet 9 of 10)


14
SH 9
CONNECT JUMPERS BETWEEN P1-a AND P1-Z
SELF TEST DS2 LIT
NO
CHK SELF TEST DS2 AND CKT. REPAIR AS REQD.
YES
DISCONNECT ALL POWER SUPPLIES AND TEST EQUIPMENT.
FINISH

Test Fixture Test
Figure 1006 (Sheet 10)

MATERIAL LIST FOR SHEET 2			
ITEM	QUANTITY	DESCRIPTION	
1	1	Pin, "SPIROL"	0.047 dia x 0.250
2	1	Knob, shot pin	See detail A
3	1	Shaft, pin	See detail B
4	4	Setscrew	2-56 x 0.125
5	2	Knob, gear	See detail C
6	2	Washer, friction	See detail D
7	4	Screw, panhead	1-72 x 0.1875
8	2	Plate, gear	See detail E
9	4	Gear	See detail F
10	2	Shaft, gear	See detail G
11	2	Stud, gear	See detail H
12	1	Knob, clamp	See detail J
13	1	Washer, flat	No 4 cres
14	2	Screw, panhead	2-56 x 0.1875
15	1	Screw, panhead	4-40 x 0.750
16	1	Clamp	See detail K
17	1	Body, left	See detail L

Tape Winding Fixture, Fabrication
Figure 1007 (Sheet 1 of 8)

ILLUSTRATED PARTS LIST

1. Introduction

The purpose of this parts list, prepared by Collins Air Transport Division of Rockwell International, is for identification, requisition, and issuance of parts. Parts listed meet critical equipment design specification requirements. Use only part numbers specified in this parts list for replacement of parts.

A. How To Use This Illustrated Parts List

To locate the illustration for a part if the equipment designator is known, refer to the Equipment Designator Index and find the equipment designator; turn to the Detailed Parts List and find the figure and index number indicated in the index.

To locate the illustration for a part if the part number is known, refer to the Numerical Index and find the part number. Turn to the Detailed Parts List and find the first figure and index number indicated in the Numerical Index for that part. If this figure shows the part in a section or system of the equipment other than the one desired, refer to the other figure numbers listed in the Numerical Index.

To locate a part number if the assembly in which the part is used is known, identify the illustration showing the breakdown of the assembly. Locate the part and its index number on the illustration and find the index number on the Detailed Parts List page to determine its description and part number.

B. Equipment Designator Index

EQUIPMENT DESIGNATOR Column -- Equipment designators are listed in alphanumeric sequence.

FIG-ITEM Column -- Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

C. Numerical Index

PART NUMBER Column -- Part numbers are listed in alphanumeric sequence.

AIRLINE PART NO Column -- Part numbers will be included by the airlines as applicable.

FIG-ITEM Column -- Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

TTL REQ Column -- Listed is the total quantity of parts or assemblies covered in the Detailed Parts List.

D. Detailed Parts List

FIG-ITEM Column -- Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers assigned in sequence to correspond with item numbers on the illustration.

PART NO Column -- Listed are MIL standard, vendor, or Collins part numbers. Collins part numbering system consists of 10 digits as follows: a 3-digit family number, a 4-digit serial number, and a 3-digit dash number.

INDENT Column -- Items are coded 1, 2, 3, etc, to indicate the relationship to the next higher assembly.

NOMENCLATURE Column -- Listed are the noun name, modifier, descriptive information, federal manufacturer's code, attaching part, reference to other figures, and effectivities. Effectivities are identified by the following methods: MCN (Manufacturer Control Number) 101 and up; CI (Configuration Identifier) 5-digit number; REV (Revision Identifier) dash (–) denotes original, letter A first change, letter B second change, etc. One of the above identifiers is listed on each chassis and/or replaceable assembly. Service Bulletins are identified by SB 1, SB 2, etc.

EFFECT CODE Column -- Part variations within a group of equipment are indicated by a letter code (A, B, C, etc). Absence of a code indicates part applies to all models.

UNITS PER ASSY Column -- Quantities specified are per item number. Letters AR denote the selection of parts as required. Letters RF refer to an assembly completely assembled on a preceding figure and illustration.

E. Manufacturer's Code, Name, and Address

CODE	MANUFACTURER'S NAME AND ADDRESS
A0473	Avery Label Co. Inc. Div. of Avery Adhesive Products Inc. Peoria, IL 61600
00404	Naugatuck Glass Co. Church and Bridge St. Naugatuck, CT 06770
01281	TRW Electronic Components Semiconductor Operations 14520 Aviation Blvd. Lawndale, CA 90260
01295	Texas Instruments, Inc. Components Group 13500 N. Central Expressway Dallas, TX 75222
01526	General Electric Co. Data Communication Products Dept. General Electric Dr. Waynesboro, VA 22980
02111	Spectrol Electronics Corp. 17070 E. Gale Ave. City of Industray, CA 91745

CODE	MANUFACTURER'S NAME AND ADDRESS
03508	General Electric Co. Semi-Conductor Products Dept. W. Genesee St. Auburn, NY 13201
03877	Transitron Electronic Corp. 168 Albion St. Wakefield, MA 01880
04713	Motorola, Inc. Semiconductor Products Group 5005 E. McDowell Rd. Phoenix, AZ 85008
04716	O&S Rsearch, Inc. 1912 Bannard St. Riverton, NJ 08077
07263	Fairchild Camera and Instrument Corp. Semiconductor Div. 464 Ellis St. Mountain View, CA 94042
07716	TRW Electronic Components IRC Fixed Resistors Burlington Div. 2850 Mt. Pleasant Burlington, IA 52601
08664	Bristol Co. Div. of American Chain and Cable Co., Inc. 40 Bristol St. Waterbury, CT 06720
12014	Chicago Rivet and Machine Co. 950 S. 25th Ave. Bellwood, IL 60104
12294	Erie Technological Products of Canada Ltd. Trenton, Ontario, Canada
12360	Albany Products Co. Div. of Pneumo Dynamics Corp. 351 Connecticut Ave. South Norwalk, CT 06856
12498	Teledyne Crystalonics 147 Sherman St. Cambridge, MA 02140
12615	U.S. Terminals, Inc. 7504 Camargo Rd. Cincinnati, OH 45243
12639	Northfield Precision Instrument Corp. 4400 Austin Blvd. Island Park, NY 11558
12954	Siemens Corp. Components Group 8700 E. Thomas Rd. P.O. Box 1390 Scottsdale, AZ 85252
13833	Edison, Thomas A., Instrument Div. McGraw-Edison Co. Planet Instruments Facility 1520 Progress Rd. Fort Wayne, IN 46808
15238	ITT Semiconductors A div. of International Telephone and Telegraph Corp. P.O. Box 168 500 Broadway Lawrence, MA 01841
16546	U.S. Capacitor Corp. Electronics Div. 4561 Colorado St. Los Angeles, CA 90039
27687	Greer-Smyrna, Inc. Smyrna Industrial Park Smyrna, TN 37167
40920	Miniature Bearing Div. MPB Corp. Optical Ave. Precision Park Keene, NH 03431

CODE	MANUFACTURER'S NAME AND ADDRESS
42838	National Rivet and Mfg. Co. 1-21 E. Jefferson St. Waupun, WI 53963
49956	Raytheon Co. 141 Spring St. Lexington, MA 02173
52152	Minnesota Mining & Mfg. Co. Industrial Specialities Div. 3 M Center St. Paul, MN 55101
56289	Sprague Electric Co. North Adams, MA 01247
65092	Weston Instruments Div. Weston Instruments, Inc. 614 Frelinghuysen Ave. Newark, NJ 07114
70318	Allmetal Screw Products Co., Inc. 821 Stewart Ave. Garden City, NY 11530
70472	Associated Spring Corp. 18 Main St. Bristol, CT 06010
70674	ADC Products Div. of Magnetic Controls Co. 4900 W. 78th St. Minneapolis, MN 55435
71744	Chicago Miniature Lamp Works 4433 Ravenswood Ave. Chicago, IL 60640
72962	ESNA Div. of Amerace Corp. 2330 Vauxhall Rd. Union, NJ 07083
72982	Erie Technological Products, Inc. 644 W. 12th St. Erie, PA 16512
74059	Honeywell, Inc. Micro Switch Div. Freeport, IL 61032
74545	Hubbell, Harvey, Inc. State St. and Bostwick Ave. Bridgeport, CT 06602
75915	Littelfuse, Inc. 800 E. Northwest Hwy. Des Plains, IL 60016
76665	National Lock Washer Co. P.O. Box 5115 Industrial Pky North Branch, NJ 08856
76854	Oak Industries Inc. Switch Div. S. Main St. Crystal Lake, IL 60014
77147	Patton-MacGuyer Co. Div. of Avid Corp. 17 Virginia Ave. Providence, RI 02905
77250	Pheoll Mfg. Co. Div. of Allied Products Corp. 5700 W. Roosevelt Rd. Chicago, IL 60650
78488	Stackpole Carbon Co. St. Mary's, PA 15857
79136	Waldes Kohinoor, Inc. 47-16 Austel Place Long Island City, NY 11101
79142	Veeder Root, Inc. 70 Sargeant St. Hartford, CT 06102
79807	Wrought Washer Mfg. Co. 2100 S. Bay St. Milwaukee, WI 53207

CODE	MANUFACTURER'S NAME AND ADDRESS
80205	National Aerospace Standards Committee Aerospace Industries Assoc. of America, Inc. 1725 DeSales NW Washington, DC 20036
80223	TRW Electronic Components UTC Transformers 150 Varick St. New York, NY 10013
80294	Bourns, Inc. 1200 Columbia Ave. Riverside, CA 92507
81073	Grayhill, Inc. 561 Hillgrove Ave. La Grange, IL 60525
81349	Military Specifications
81350	Joint Army-Navy Specifications
83259	Parker Seal Co. Div. of Parker-Hannifin Corp. 10567 Jefferson Blvd. Culver City, CA 90231
84830	Lee Spring Co., Inc. 30 Main St. Brooklyn, NY 11201
88044	Aeronautical Standards Group Dept. of Navy and Air Force
88818	Singer Co., The Kearfott Div. 1150 McBride Ave. Little Falls, NJ 07424
91506	Augat, Inc. 33 Perry Ave. Attleboro, MA 02703
91637	Dale Electronics, Inc. P.O. Box 609 Columbus, NB 68601
95238	Continental Connector Corp. 34-63 56th St. Woodside, NY 11377
96906	Military Standards
98291	Sealectro Corp. 225 Hoyt Mamaroneck, NY 10544

E. Effect Codes

The following effect codes have been assigned in this manual:

EFFECT CODE	UNIT PART NUMBER	FIG-ITEM
A	522-4825-002	1-1
B	522-4825-004	1-1
C	522-4825-005	1-1
D	522-4825-006	1-1
E	522-4825-007	1-1
F	522-4825-008	1-1

F. Reference Designation Prefixed

The following prefixes have been assigned in this manual:

PREFIX	UNIT PART NUMBER	FIG-ITEM
A1	609-4742-001	6-1
A2	609-4743-001	7-1
A3	621-9605-00	8-1
TB1	797-6621-001	4-1
TB1	797-6621-002	4-1
TB2	797-6625-001	5-1
TB2	618-4202-001	5-1

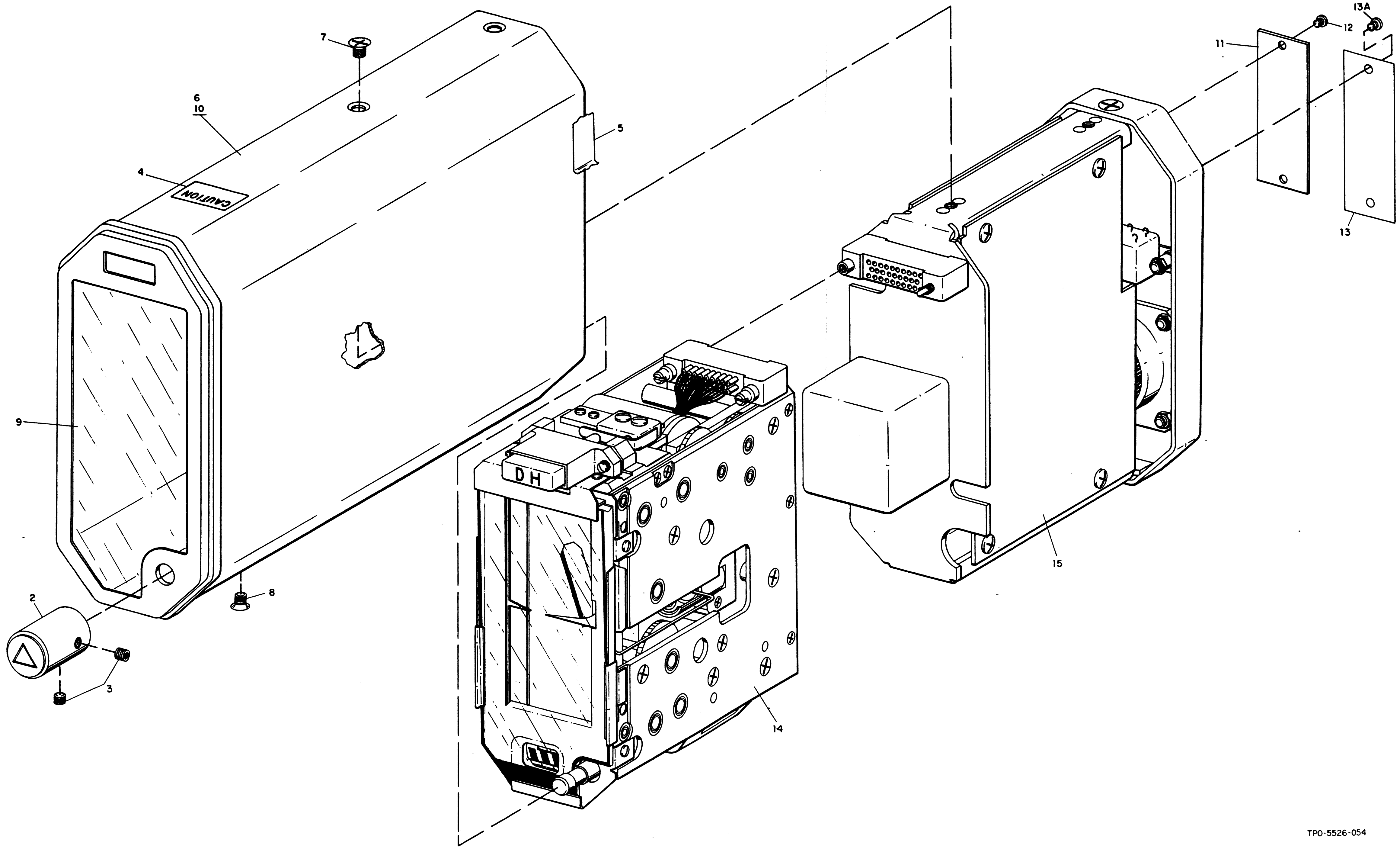
G. Configuration Identifiers

The following CI's/REV LTR's were used in compiling data for this manual:

CI/REV LTR	UNIT PART NUMBER	FIG-ITEM
H	522-4825-002	1-1
M	522-4825-004	1-1
L	522-4825-005	1-1
L	522-4825-006	1-1
E	522-4825-007	1-1
-	522-4825-008	1-1
M	797-6682-001	2-1
L	797-7239-001	2-1
E	797-7239-002	2-1
F	609-4744-001	2-1
-	609-4744-002	2-1
A	797-6682-002	2-1

CI/REV LTR	UNIT PART NUMBER	FIG-ITEM
M	797-6689-001	3-1
J	797-6689-002	3-1
S	609-4745-001	3-1
AA	797-6621-001	4-1
AA	797-6621-002	4-1
L	797-6625-001	5-1
F	618-4202-001	5-1
K	609-4742-001	6-1
S	609-4743-001	7-1
D	621-9605-001	8-1

2. Detailed Parts List



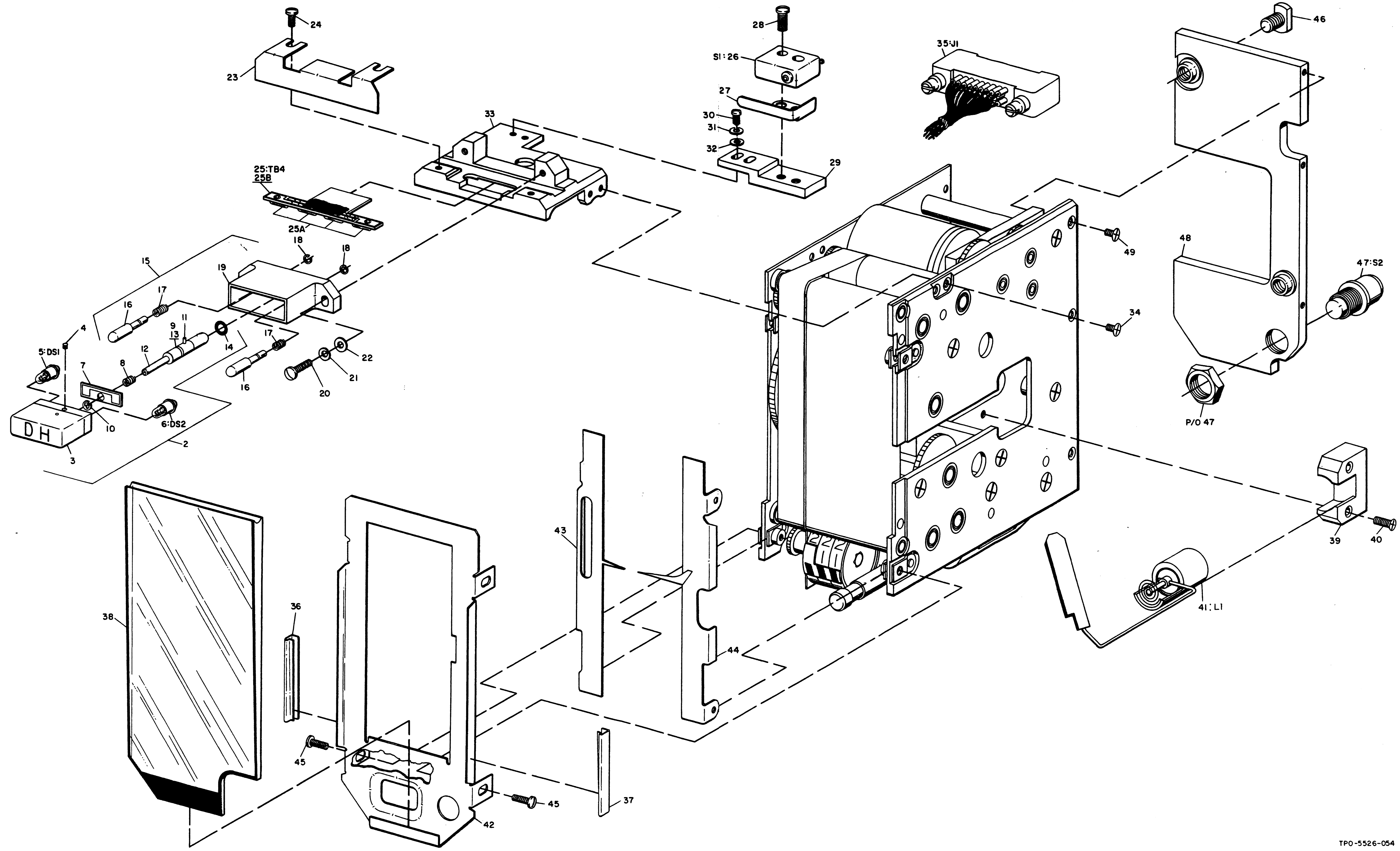
339H-2 Radio Altitude Indicator
Figure 1

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	1-1	522-4825-002	1	INDICATOR, RADIO ALTITUDE 339H-2	A	1
	-1	522-4825-004	1	INDICATOR, RADIO ALTITUDE 339H-2	B	1
	-1	522-4825-005	1	INDICATOR, RADIO ALTITUDE 339H-2	C	1
	-1	522-4825-006	1	INDICATOR, RADIO ALTITUDE 339H-2	D	1
R	1	522-4825-007	1	INDICATOR, RADIO ALTITUDE 339H-2	E	1
R	1	522-4825-008	1	INDICATOR, RADIO ALTITUDE 339H-2	F	1
R	2	792-1222-001	2	KNOB	A,D,E,F	1
	2	797-7701-001	2	KNOB (EFF TO CI 71164)	B	1
	2	609-3810-001	2	KNOB (EFF CI 71164 TO CI 72113)	B	1
	2	609-3810-002	2	KNOB (EFF CI 72113)	B	1
	2	609-3810-001	2	KNOB (EFF TO CI 72314)	C	1
	2	797-7701-002	2	KNOB (EFF CI 72314 TO CI 73083) SB-8	C	1
	2	797-7701-003	2	KNOB (EFF CI 73083) SB-8	C	1
	3	AN565D4L2	2	SETSCREW CD PL STL, 4-40 X 1/8 (V88044) 328-0371-000 (AP)		2
	4	280-3441-000	2	PLATE,INSTR (VA0473) 280-3441-000		1
	5	850 3-4IN	2	TAPE,PRESS SENS (V52152) 014-1198-000		AR
	6	797-6680-001	2	CASE, CEMENTED		1
	7	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP)		4
	8	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		2
	9	192 0002 010	3	WINDOW,DIAL WINDOW, DIAL (V91652) 192-0002-010		1
	10	797-6600-001	3	CASE		1
R	11	757-9685-000	2	PLATE, IDENT	A,D,E,F	1
R	11	757-9685-008	2	PLATE,IDENT	B,C	1
	12	P347-1268-000	2	SCREW,MACH SST, 2-56 X 1/8 (V77250) 347-1268-000 (AP)		2
	13	791-8387-001	2	PLATE, DESIGN		1
	13A	P347-1268-000	2	SCREW,MACH SST, 2-56 X 1/8 (V77250) 347-1268-000 (AP)		2
	14	797-6682-001	2	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 2)	A	1
	14	797-7239-001	2	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 2)	B	1
	14	797-7239-002	2	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 2)	C	1
	14	609-4744-001	2	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 2)	D	1
	14	609-4744-002	2	INDICATOR SUBASSEMBLY,MECHANICAL (SEE FIG 2)	E	1
R	14	609-6682-002	2	INDICATOR SUBASSEMBLY,MECHANICAL (SEE FIG 2)	F	1
R	15	797-6689-001	2	ELECTRONIC SUBASSEMBLY (SEE FIG 3)	A,B,F	1
	15	797-6689-002	2	ELECTRONIC SUBASSEMBLY (SEE FIG 3)	C	1
R	15	609-4745-001	2	ELECTRONIC SUBASSEMBLY (SEE FIG 3)	D,E	1

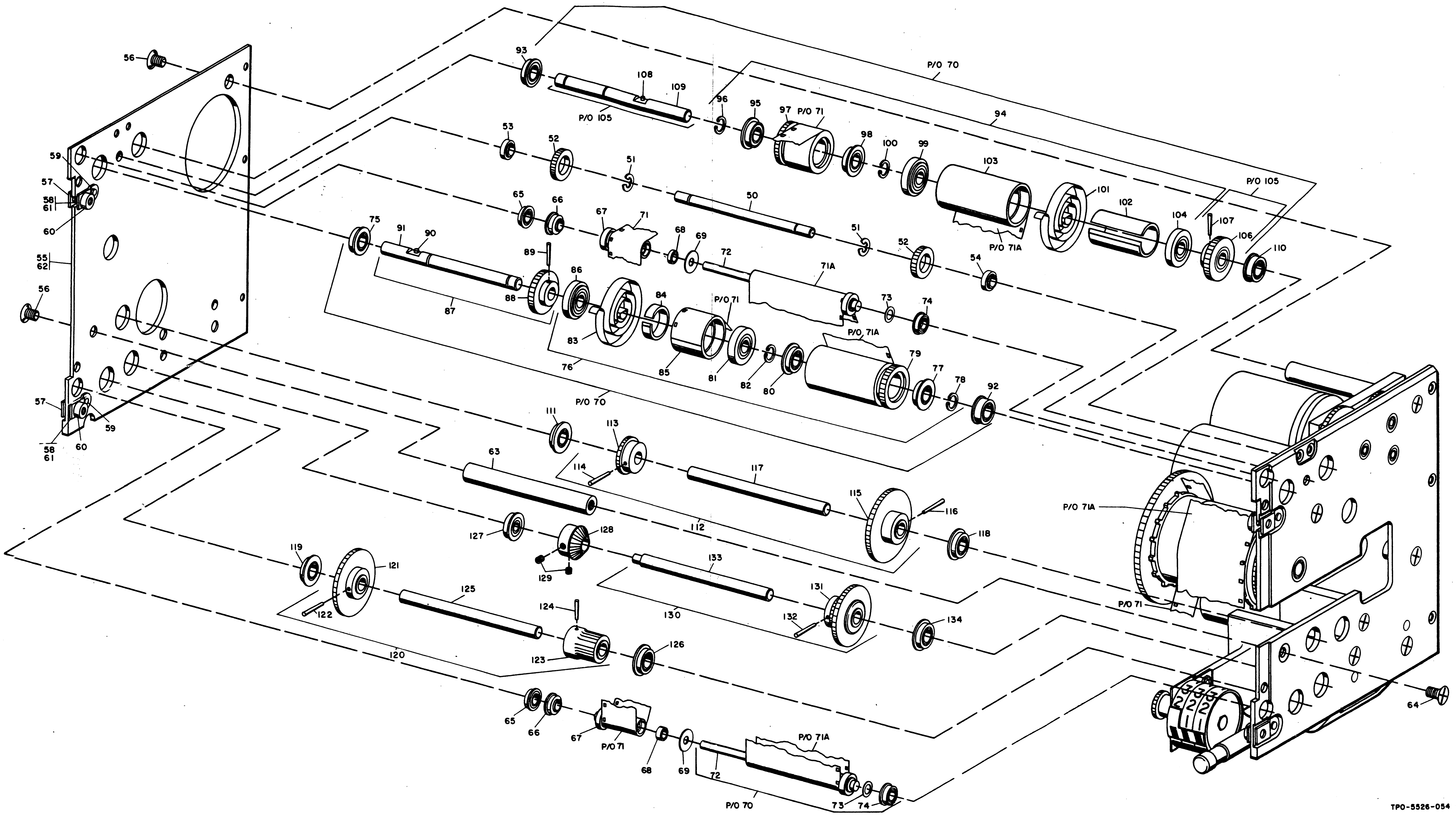
- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST



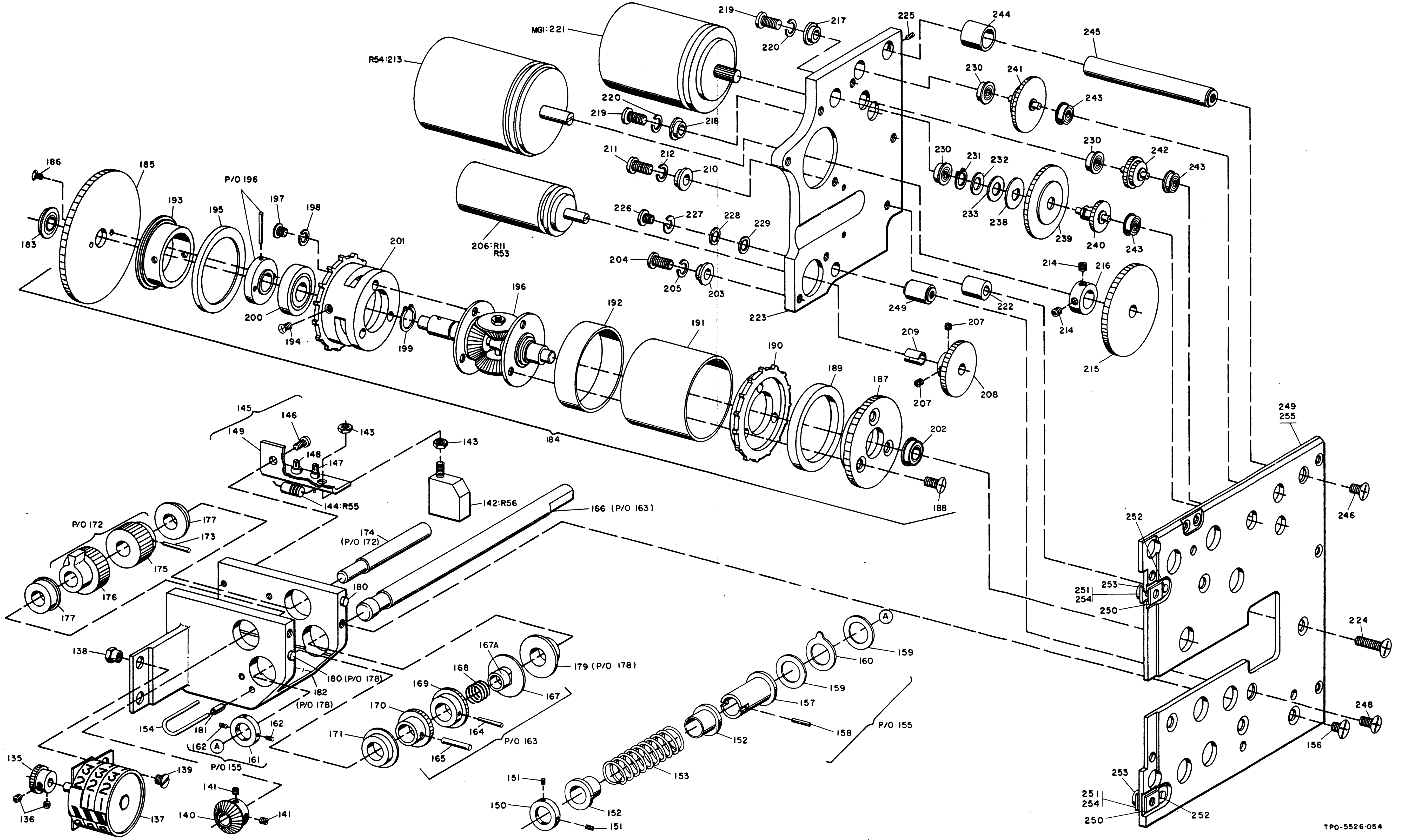
Mechanical Indicator Subassembly
Figure 2 (Sheet 1 of 3)

DETAILED PARTS LIST



TPO-5526-054

Mechanical Indicator Subassembly
Figure 2 (Sheet 2)



Mechanical Indicator Subassembly
Figure 2 (Sheet 3)

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	2-1	797-6682-001	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	A	RF
	-1	797-7239-001	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	B	RF
	-1	797-7239-002	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	C	RF
	-1	609-4744-001	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	D	RF
R	1	609-4744-002	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	E	RF
R	1	797-6682-002	1	INDICATOR SUBASSEMBLY, MECHANICAL (SEE FIG 1-14 FOR NHA)	F	RF
	2	791-2204-001	2	LENS ASSY		1
R	3	778-0286-001	3	LENS	A,B,C,D	1
	3	778-0286-003	3	LENS	E	1
	4	328-0372-000	3	SETSCREW CD PL STL, 0-80 X 1/16 (V08664) 328-0372-000		1
	5	MS24515-718	3	LAMP,INCAND (V96906) 262-1883-000	A	1
R	5	CM6839	3	LAMP,INCAND (V71744) 262-1883-020 (EFF SB22)	B,C,D,E F	1
	6	MS24515-718	3	LAMP,INCAND (V96906) 262-1883-000	A	1
R	6	CM6839	3	LAMP,INCAND (V71744) 262-1883-020 (EFF SB22)	B,C,D,E F	1
	7	791-2273-001	3	WIRING BOARD, PRINTED		1
	8	544-2928-002	3	SPRING		1
	9	775-5733-001	3	ROD, SW ACTR		1
	10	5133-6C	3	RING,RTNG (V79136) 340-0256-000 (AP FOR 8,9)		1
	11	MS51923-111	4	PIN,SPRING SST, 0.031 DIA X 1/8 (V96906) 311-0430-000		1
	12	775-5327-001	4	TIP, INSULATING		1
	13	779-3327-001	4	PIN, SW ACTR		1
	14	2-2N219-7	3	GASKET (V83259) 200-2394-010		1
	15	791-2205-001	2	HOUSING ASSY		1
	16	778-1295-001	3	CONTACT, SW		2
	17	544-2928-002	3	SPRING		2
	18	MS16633-5004	3	RING,RTNG (V96906) 340-0257-000 (AP FOR 16,17)		2
	19	778-0287-001	3	MOLDING, SW HOUSING		1
	20	323-0256-000	3	SCREW,MACH SST, 0-80 X 1/4 (V74545) 323-0256-000 (AP)		2
	21	0-022X022	3	WASHER,LOCK,SPR SST, 0.073 ID X 0.117 OD (V76665) 310-0501-000 (AP)		2
	22	310-0550-000	3	WASHER,FLAT SST, 0.062 ID X 5/32 OD (V79807) 310-0550-000 (AP)		2
	23	775-5255-001	2	SHIELD, LAMP		1
	24	323-0254-000	2	SCREW,MACH SST, 0-80 X 1/8 (V74545) 323-0254-000 (AP)		2
	25	775-5737-001	2	BOARD, LTG		1
R	25A	CM715ASP15PCTM15 PCT	3	LAMP,INCANDESCE (V71744) 262-1095-000		4
R	25B	775-5391-001	3	BOARD		1
	26	MS24547-1	2	SWITCH,SENS (V96906) 266-7002-000		1
	27	266-7096-020	2	ADAPTER,SWITCH (V74059) 266-7096-020		1
	28	23846-007	2	SCREW,MACH SST, 2-56 X 5/16 (V76854) 330-4799-000 (AP FOR 26-27)		2
	29	775-5348-001	2	BRACKET, SW MTG (EFF TO CI 71293)	A,B	1
	30	323-0254-000	2	SCREW,MACH SST, 0-80 X 1/8 (V74545) 323-0254-000 (AP) (EFF TO CI 71293)	A,B	2
	31	0-022X022	2	WASHER,LOCK,SPR SST, 0.073 ID X 0.117 OD (V76665) 310-0501-000 (AP) (EFF TO CI 71293)		2
	32	310-0550-000	2	WASHER,FLAT SST, 0.062 ID X 5/32 OD (V79807) 310-0550-000 (AP) (EFF TO CI 71293)	A,B	2
	33	797-7575-001	2	MOUNTING		1
	34	P322-0163-000	2	SCREW,MACH SST, 0-80 X 3/32 (V77250) 322-0163-000 (AP)		4
	35	MM26-22PSLGDF	2	CONNECTOR,PLUG ELEC (V95238) 372-5878-020		1
	36	775-5312-002	2	CLIP, WEDGE		1
	37	775-5312-001	2	CLIP, WEDGE		1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
2 38	192 2018 010	2	WEDGE,LIGHTING WEDGE, LTG (V91652) 192-2018-010		1
39	775-5314-001	2	CLAMP, FLAG		1
40	P322-0166-000	2	SCREW,MACH BRS, 0-80 X 1/2 (V77250) 322-0166-000 (AP)		2
R 41	253818	2	SOLINOID, ELEC (V65092) 482-5082-020	A,F	1
R 41	482-5082-050	2	SOLENOID,ELEC (V65092) 482-5082-050	B,E	1
42	775-5383-001	2	MASK, INDICATOR		1
R 43	778-0172-001	2	MASK, POINTER	A,B,D,F	1
43	778-0172-002	2	MASK,POINTER	C	1
R 43	618-5501-001	2	MASK,POINTER	E	1
R 44	778-0171-001	2	MASK, POINTER	A,B,D,F	1
44	778-0171-002	2	MASK,POINTER	C	1
R 44	618-5502-001	2	MASK,POINTER	E	1
45	323-0254-000	2	SCREW,MACH SST, 0-80 X 1/8 (V74545) 323-0254-000 (AP FOR 42-44)		4
46	P330-3059-330	2	SCREW,MACH STL, 6-32UNC2A X 3/8 (V77250) 330-3059-330		2
R 47	30YY2088	2	SWITCH,PUSH (V81073) 260-2709-000	A,D,E,F	1
48	775-5740-001	2	PLATE, REAR		1
49	P322-0169-000	2	SCREW,MACH SST, 0-80 X 3/16 (V77250) 322-0169-000 (AP)		6
50	775-5338-001	2	SHAFT, STR		1
51	MS16633-1009	2	RING,RTNG (V96906) 340-0086-000 (AP)		2
52	775-5352-001	2	GEAR, IDLER		2
53	S3332CEP25LY5	2	BEARING,BALL,AN (V40920) 309-1967-020		1
54	S3332CEP25LY5	2	BEARING,BALL,AN (V40920) 309-1967-020		1
55	778-0175-001	2	PLATE, GEAR		1
56	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		3
57	778-0170-002	3	CLAMP		2
58	778-0173-001	3	CLAMP, MASK		2
59	RA22638	3	RIVET,TUBULAR NP BRS, 0.05 DIA X 0.093 (V42838) 305-2064-010 (AP FOR 57-58)		2
60	775-5390-002	4	MASK, POINTER		1
61	778-0170-002	4	CLAMP		1
62	775-5332-001	3	PLATE, GEAR		1
63	775-5388-001	2	POST, ELEC-MECH EQUIP		1
64	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		1
65	S3332FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1559-000		2
66	S3332FCE3P25LY5	2	BEARING,BALL,AN (V40920) 309-0003-010		2
67	779-3728-001	2	ROLLER, TAPE		2
68	S3332CP25LY5	2	BEARING,BALL,AN (V40920) 309-1862-000		2
69	778-1704-001	2	WASHER		2
70	797-6681-001	2	TAPE,INDICATOR (EFF TO CI 73254) SB-11	A,D	1
R 70	797-6681-003	2	TAPE, INDICATOR (EFF CI 73254) SB-11	A,D,F	1
70	797-7238-001	2	TAPE, INDICATOR (EFF TO CI 73254) SB-11	B	1
70	797-7238-003	2	TAPE, INDICATOR (EFF CI 73254) SB-11	B	1
70	797-7238-002	2	TAPE, INDICATOR (EFF TO CI 73254) SB-8,SB-11	C	1
70	797-7238-004	2	TAPE, INDICATOR (EFF CI 73254) SB-11	C	1
R 70	797-6681-004	2	TAPE,INDICATOR	E	1
R 71	775-5250-001	3	TAPE, DH	A,B,D,E F	1
71	775-5250-003	3	TAPE, DH (EFF TO CI 73083)	C	1
71	775-5250-002	3	TAPE, DH (EFF CI 73083)	C	1
R 71A	792-1261-001	3	TAPE, ALTITUDE	A,D,F	1
71A	797-7181-001	3	TAPE, ALTITUDE	B,C	1
R 71A	618-5499-001	3	TAPE,ALTITUDE	E	1
72	775-5385-001	3	ROLLER		2
73	779-3590-001	3	SHIM		AR
74	S3332FC3P15LY5	3	BEARING,BALL,AN (V40920) 309-1559-000		2
75	S418FC3P15LY5	3	BEARING,BALL,AN (V40920) 309-1561-000		1
R 76	775-5738-001	3	ROLLER ASSY, STORAGE (EFF TO CI 73353) SB-11	A,B,C,D	1
R 76	775-5738-002	3	ROLLER ASSY, STORAGE (EFF CI 73353) SB-11		1
77	S418FC3P15LY5	4	BEARING,BALL,AN (V40920) 309-1561-000		1
78	MS16624-5012	4	RING,RTNG (V96906) 340-0021-000 (AP)		1
R 79	775-5346-001	4	ROLLER, STORAGE (EFF TO REV LTR C) SB-11	A,B,C,D	1
R 79	618-1315-001	4	ROLLER, STORAGE (EFF REV LTR C) SB-11		1

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	2 80	S418FC3P15LY5	4	BEARING,BALL,AN (V40920) 309-1561-000		1
	81	S125-375NP15LY5	4	BEARING,BALL (V40920) 309-1174-010		1
	82	MS16624-5012	4	RING,RTNG (V96906) 340-0021-000 (AP)		1
	83	775-5320-001	4	SPRING, SPL TRSN		1
	84	775-5357-001	4	HOUSING, RTNG SPR		1
	85	775-5340-001	4	ROLLER, STORAGE		1
	86	S125-375NP15LY5	4	BEARING,BALL (V40920) 309-1174-010		1
R	87	775-5359-001	4	GEARSHAFT, SPUR (EFF TO CI 73353)SB11	A,B,C,D	1
R	87	775-5359-002	4	GEARSHAFT (EFF CI 73353) SB11		1
R	88	775-5347-001	5	GEAR, SPUR (EFF TO REV LTR C) SB-11	A,B,C,D	1
R	88	618-1314-001	5	GEAR, SPUR (EFF REV LTR C) SB-11		1
R	89	311-1553-000	5	PIN,TAPERED,PL SST, 1/32DIA X 1/4 (V70318) 311-1553-000 (EFF TO REV LTR A)	A,B,C,D	1
	89	311-1558-000	5	PIN,TAPERED,PL SST, 3/64DIA X 1/4 (V70318) 311-1558-000 (EFF REV LTR A)		1
R	90	797-7684-001	5	PIN, STR (EFF TO REV LTR B)	A,B,C,D	1
	90	623-9677-001	5	PIN (EFF REV LTR B)		1
	91	775-5353-001	5	SHAFT, STR		1
	92	S418FC3P15LY5	3	BEARING,BALL,AN (V40920) 309-1561-000		1
	93	S418FC3P15LY5	3	BEARING,BALL,AN (V40920) 309-1561-000		1
R	94	775-5739-001	3	ROLLER ASSY, STORAGE (EFF TO CI 73353) SB-11	A,B,C,D	1
R	94	775-5739-002	3	ROLLER ASSY, STORAGE (EFF CI 73353) SB-11		1
	95	S418FC3P15LY5	4	BEARING,BALL,AN (V40920) 309-1561-000		1
	96	MS16624-5012	4	RING,RTNG (V96906) 340-0021-000 (AP)		1
R	97	775-5345-001	4	ROLLER, STORAGE (EFF TO CI 73353) SB-11	A,B,C,D	1
R	97	618-1316-001	4	ROLLER, STORAGE (EFF CI 73353) SB-11		1
	98	S418FC3P15LY5	4	BEARING,BALL,AN (V40920) 309-1561-000		1
	99	S125-375NP15LY5	4	BEARING,BALL (V40920) 309-1174-010		1
	100	MS16624-5012	4	RING,RTNG (V96906) 340-0021-000 (AP)		1
	101	775-5320-001	4	SPRING, SPL TRSN		1
	102	775-5357-002	4	HOUSING, RTNG SPR		1
	103	775-5341-001	4	ROLLER, STORAGE		1
	104	S125-375NP15LY5	4	BEARING,BALL (V40920) 309-1174-010		1
R	105	775-5358-001	4	GEARSHAFT (EFF TO CI 73353) SB11	A,B,C,D	1
R	105	775-5358-002	4	GEARSHAFT SB-11		1
R	106	775-5347-001	5	GEAR, SPUR (EFF TO REV LTR C) SB-11	A,B,C,D	1
R	106	618-1314-001	5	GEAR, SPUR (EFF REV LTR C) SB-11		1
R	107	311-1553-000	5	PIN,TAPERED,PL SST, 1/32DIA X 1/4 (V70318) 311-1553-000 (EFF TO REV LTR A)	A,B,C,D	1
	107	311-1558-000	5	PIN,TAPERED,PL SST, 3/64DIA X 1/4 (V70318) 311-1558-000 (EFF REV LTR A)		1
R	108	797-7684-001	5	PIN,GROOVED (EFF TO REV LTR B)	A,B,C,D	1
	108	623-9677-001	5	PIN (EFF REV LTR B)		1
	109	775-5354-001	5	SHAFT, STR		1
	110	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
	111	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
	112	775-5324-001	2	GEAR CLUSTER		1
	113	775-5321-001	3	GEAR		1
	114	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000 (AP)		1
	115	775-5322-001	3	GEAR		1
	116	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000 (AP)		1
	117	775-5307-001	3	SHAFT, STR		1
	118	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
	119	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
	120	775-5310-001	2	GEAR CLUSTER		1
	121	775-5309-001	3	GEAR		1
	122	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000 (AP)		1
	123	775-5308-001	3	GEAR		1
	124	311-1558-000		PIN,TAPERED,PL SST, 3/64DIA X 1/4 (V70318) 311-1558-000 (AP)		1

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
2 125	775-5307-001	3	SHAFT, STR		1
126	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
127	S4FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1558-000		1
128	778-1207-001	2	GEAR, BVL		1
129	AN565D2L1	2	SETSCREW CD PL STL, 2-56 X 1/16 (V88044) 328-0370-000 (AP)		2
130	775-5330-001	2	GEARSHAFT		1
131	775-5325-001	3	GEAR CLUSTER		1
132	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000		1
133	775-5331-001	3	SHAFT, SHLD		1
134	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
135	775-5339-001	2	GEAR		1
136	328-0372-000	2	SETSCREW CD PL STL, 0-80 X 1/16 (V08664) 328-0372-000 (AP)		2
137	015-3184-010	2	COUNTER,ROT (V79142) 015-3184-010 (EFF TO CI 71463) SB-10	A,B	1
137	A1165	2	COUNTER,ROT (V13833) 015-3184-020 (EFF CI 71463) SB-10	A,B	1
R 137	A1165	2	COUNTER,ROT (V13833) 015-3184-020	C,D,E,F	1
138	775-5399-001	2	NUT, SHLD (AP)		2
139	323-0262-000	2	SCREW,MACH SST, 1-72 X 3/16 (V74545) 323-0262-000 (AP)		2
140	778-1208-001	2	GEAR, BVL		1
141	AN565D2L1	2	SETSCREW CD PL STL, 2-56 X 1/16 (V88044) 328-0370-000 (AP)		2
142	50-9-221-501	2	RESISTOR,VAR,WW 500 OHMS, 5%, 1W (V02111) 377-0718-060		1
143	313-9001-000	2	NUT,MACHINE SCR NP BRS, 1-72 (V12360) 313-9001-000 (AP)		2
144	RCR07G561KS	2	RESISTOR,FXD CMPSN, 560 OHMS, 10%, 1/4W (V81349) 745-0740-000		1
145	775-5731-001	2	HOLDER, TERM		1
146	323-0254-000	2	SCREW,MACH SST, 0-80 X 1/8 (V74545) 323-0254-000 (AP)		2
147	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010		2
148	SL347-322WHT	3	TERMINAL,STDF (V12615) 306-1532-000		1
149	775-5398-001	3	HOLDER, TERM		1
150	544-3521-003	2	COLLAR, SHAFT		1
151	AN565D2L1	2	SETSCREW CD PL STL, 2-56 X 1/16 (V88044) 328-0370-000 (AP)		4
152	778-1200-001	2	SEAT, SPR		2
153	778-1206-001	2	SPRING		1
154	778-1158-001	2	WIRE		1
R 155	775-5734-001	2	STOP ASSY	A,D,E,F	1
155	775-5734-001	2	STOP ASSY (EFF TO CI 71133)	B	1
155	609-3732-001	2	STOP ASSY (EFF CI 71133)	B	1
155	609-3732-001	2	STOP ASSY	C	1
156	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		2
157	779-3257-001	3	SPACER, SLV		1
158	MS16562-190	3	PIN,SPR SST, 0.062 DIA X 1/4 (V96906) 311-0417-000		1
159	779-3244-001	3	WASHER		2
160	779-3258-001	3	DISK, CLUTCH		1
161	544-3521-003	3	COLLAR, SHAFT		1
162	AN565D2L1	3	SETSCREW CD PL STL, 2-56 X 1/16 (V88044) 328-0370-000 (AP)		4
163	775-5367-001	3	GEAR CLUSTER		1
164	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000 (AP)		1
165	775-5747-001	3	PIN, MOD (AP)		1
166	775-5370-001	4	SHAFT, SHLD		1
167	775-5380-001	4	WASHER		1
167A	609-3730-001	3	SPACER,SLEEVE (EFF CI 71463)	B	1
167A	609-3730-001	3	SPACER,SLEEVE	C	1
168	LC026C1	3	SPRING,CPRSN (V84830) 340-1082-010		1
169	775-5368-001	3	GEAR		1
170	778-1205-001	3	GEAR		1

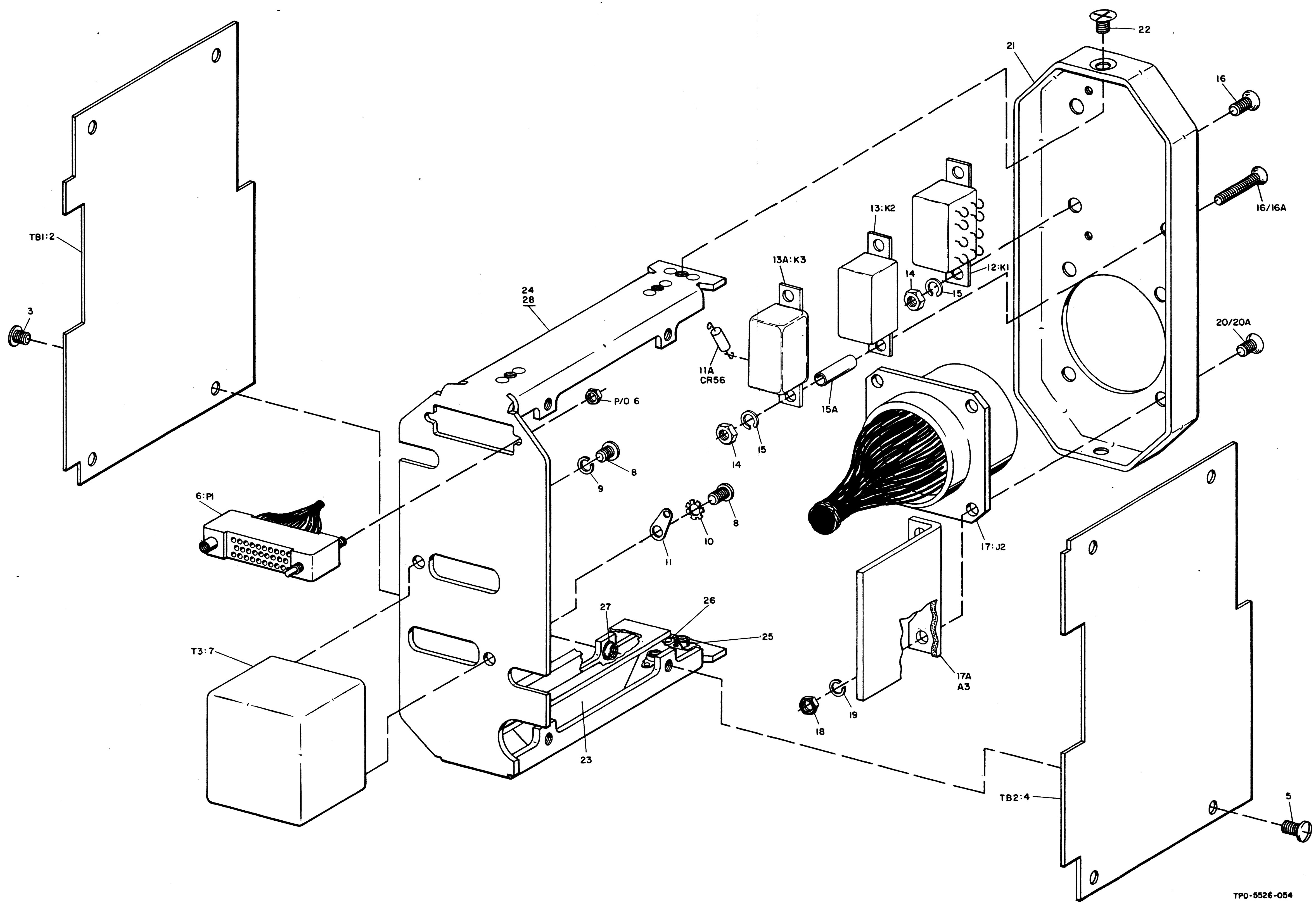
DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
2 171	127-95	3	BEARING,SLV (V12639) 309-1494-000		1
172	775-5374-001	3	GEARSHAFT		1
173	311-1559-000	3	PIN,TAPERED,PL SST, 3/64DIA X 5/16 (V70318) 311-1559-000 (AP)		1
174	775-5371-001	3	SHAFT, SHLD		1
175	775-5372-001	4	GEAR		1
176	775-5400-001	3	STOP, MECH		1
177	127-85	2	BEARING,SLV (V12639) 309-1492-000		2
178	775-5732-001	2	MOUNT, CNTR		1
179	775-5381-001	3	BEARING, SLV		1
180	311-0782-000	3	PIN,STR,HDLS SST, 0.093 DIA X 1/4 (V70318) 311-0782-000		4
181	MS16562-193	3	PIN,SPR SST, 0.062 DIA X 7/16 (V96906) 311-0420-000		2
182	775-5304-001	3	MOUNTING		1
183	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
184	775-5741-001	2	SPROCKET ASSY		1
185	775-5334-001	3	GEAR		1
186	P322-0169-000	3	SCREW,MACH SST, 0-80 X 3/16 (V77250) 322-0169-000 (AP)		2
187	775-5351-001	3	GEAR		1
188	MS51959-4	3	SCREW,MACH SST, 2-56 X 5/16 (V96906) 342-0134-000 (AP)		3
189	775-5343-001	3	GUIDE, ROLLER		1
190	792-0620-001	3	SPROCKET WHEEL		1
191	775-5336-001	3	ROLLER		1
192	775-5335-001	3	ROLLER		1
193	775-5356-001	3	SUPPORT, BRG		1
194	P322-0156-000	3	SCREW,MACH SST, 0-80 X 1/8 (V77250) 322-0156-000 (AP)		2
195	775-5342-001	3	GUIDE		1
196	775-5301-001	3	DIFFERENTIAL		1
197	P321-0205-000	3	SCREW,MACH SST, 2-56 X 3/16 (V77250) 321-0205-000 (AP)		3
198	MS35338-134	3	WASHER,LOCK SST, 0.088 ID X 0.172 OD (V96906) 310-0275-000 (AP)		3
199	MS16624-5018	3	RING,RTNG (V96906) 340-0004-000 (AP)		1
200	S614C5A245P25LY5	3	BEARING,BALL (V40920) 309-1175-010		1
201	792-0619-001	3	SPROCKET WHEEL		1
202	S418FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1561-000		1
203	544-3643-002	2	CLAMP, RIM		2
204	P347-0022-000	2	SCREW,MACH SST, 2-56 X 1/4 (V77250) 347-0022-000 (AP)		2
205	MS35338-134	2	WASHER,LOCK SST, 0.088 ID X 0.172 OD (V96906) 310-0275-000 (AP)		2
R 206	164-7	2	RESISTOR,VAR 2K, 5%, 2W (V02111) 381-1850-010	A,B,C,F	1
R 206	164-7	2	RESISTOR,VAR 2K, 5%, 2W (V02111) 381-1850-010	D,E	1
207	328-0372-000	2	SETSCREW CD PL STL, 0-80 X 1/16 (V08664) 328-0372-000 (AP)		2
208	775-5361-001	2	GEAR		1
209	775-5337-001	2	BUSHING		1
210	544-3643-002	2	CLAMP, RIM		2
211	P347-0022-000	2	SCREW,MACH SST, 2-56 X 1/4 (V77250) 347-0022-000 (AP)		2
212	MS35338-134	2	WASHER,LOCK SST, 0.088 ID X 0.172 OD (V96906) 310-0275-000 (AP)		2
213	502-5071	2	RESISTOR,VAR 1705.6 OHMS, 3%, 1W (V02111) 381-1849-010		1
214	AN565D2L1	2	SETSCREW CD PL STL, 2-56 X 1/16 (V88044) 328-0370-000 (AP)		2
215	775-5355-001	2	GEAR		1
216	544-3521-002	2	COLLAR, SHAFT		1
217	544-3643-002	2	CLAMP, RIM		1
218	542-6138-002	2	CLAMP, RIM		1
219	P347-0022-000	2	SCREW,MACH SST, 2-56 X 1/4 (V77250) 347-0022-000 (AP FOR 217-218)		2
220	MS35338-134	2	WASHER,LOCK SST, 0.088 ID X 0.172 OD (V96906) 310-0275-000 (AP FOR 217-218)		2
221	CL40820006	2	MOTOR-TACH GEN (V88818) 229-2049-010 (REF 39-200-1 523-0762425)		1
222	775-5362-002	2	SPACER, SLV		2

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
2 223	775-5319-001	2	PLATE, GEAR		1
224	P330-2288-000	2	SCREW,MACH SST, 2-56 X 7/16 (V77250) 330-2288-000 (AP FOR 222-223)		2
225	328-0373-000	2	SETSCREW CD PL STL, 0-80 X 1/8 (V08664) 328-0373-000 (AP FOR 222-223)		1
226	MS51957-3	2	SCREW,MACH CD PL STL, 2-56 X 1/4 (V96906) 343-0124-000 (AP FOR 222-223)		1
227	MS35338-134	2	WASHER,LOCK SST, 0.088 ID X 0.172 OD (V96906) 310-0275-000 (AP FOR 222-223)		1
228	544-8792-003	2	WASHER (AP FOR 222-223)		AR
229	310-6320-000	2	WASHER,FLAT SST, 0.092 ID X 0.218 OD (V79807) 310-6320-000 (AP FOR 222-223)		1
230	S3FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1557-000		3
231	MS16633-1012	2	RING,RTNG (V96906) 340-0087-000		1
232	B0250-013	2	WASHER,SPR TNSN STL, 0.125 ID X 0.250 OD (V70472) 310-0756-020		1
233	761-5316-030	2	WASHER		AR
-234	761-5316-031	2	WASHER		AR
-235	761-5316-032	2	WASHER		AR
-236	761-5316-033	2	WASHER		AR
-237	761-5316-034	2	WASHER		AR
238	775-5395-001	2	WASHER		1
239	775-5394-001	2	GEAR		1
240	775-5396-001	2	GEARSHAFT		1
241	775-5333-001	2	GEAR CLUSTER SB-4		1
242	775-5318-001	2	GEAR SB-4		1
243	S3FC3P15LY5	2	BEARING,BALL,AN (V40920) 309-1557-000		3
244	775-5362-001	2	SPACER, SLV		1
245	775-5344-001	2	POST, INDEXING		1
246	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		1
247	775-5364-001	2	POST, ELEC-MECH EQUIP		1
248	P330-2284-000	2	SCREW,MACH SST, 2-56 X 3/16 (V77250) 330-2284-000 (AP)		1
249	778-0174-001	2	PLATE, GEAR		1
250	778-0170-002	3	CLAMP		2
251	778-0173-001	3	CLAMP, MASK		2
252	RA22638	3	RIVET,TUBULAR NP BRS, 0.05 DIA X 0.093 (V42838) 305-2064-010 (AP FOR 250-251)		2
253	775-5390-002	4	MASK, POINTER		1
254	778-0170-002	4	CLAMP		1
255	775-5326-001	3	PLATE		1

- ITEM NOT ILLUSTRATED



Electronic Subassembly
Figure 3

DETAILED PARTS LIST

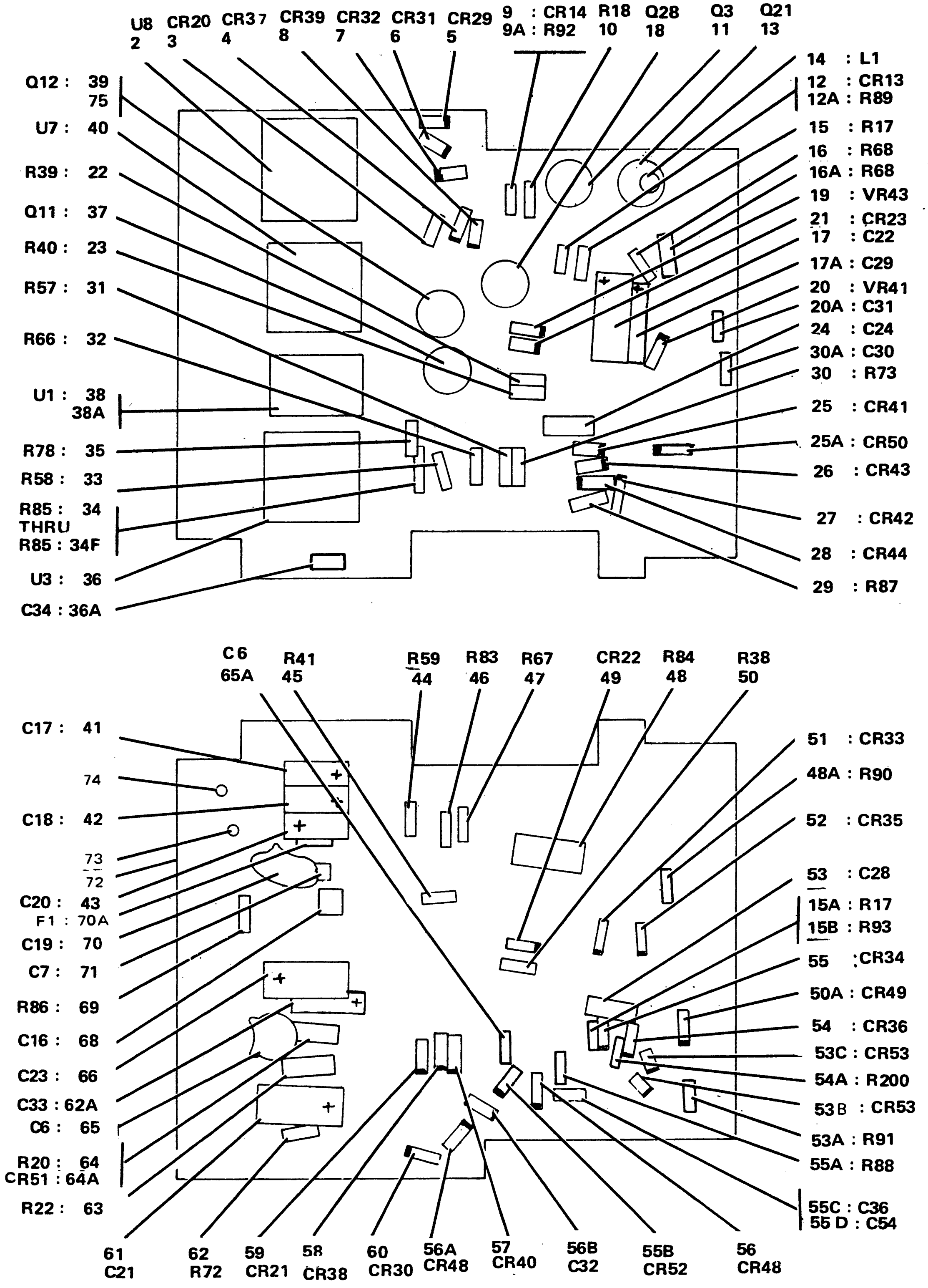
	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R	3-1	797-6689-001	1	ELECTRONIC SUBASSEMBLY (SEE FIG 1-15 FOR NHA)	A,B,F	RF
	-1	797-6689-002	1	ELECTRONIC SUBASSEMBLY (SEE FIG 1-15 FOR NHA)	C	RF
R	-1	609-4745-001	1	ELECTRONIC SUBASSEMBLY (SEE FIG 1-15 FOR NHA)	D,E	RF
R	2	797-6621-001	2	ELECTRONIC COMPONENT ASSY (SEE FIG 4)	A,B,F	1
	2	797-6621-002	2	ELECTRONIC COMPONENT ASSY (SEE FIG 4)	C	1
R	2	609-4743-001	2	ELECTRONIC COMPONENT ASSY (SEE FIG 7)	D,E	1
	3	MS51957-2	2	SCREW,MACH SST, 2-56 X 3/16 (V96906) 343-0123-000 (AP)		4
R	4	797-6625-001	2	ELECTRONIC COMPONENT ASSY (SEE FIG 5)	A,B,F	1
	4	618-4202-001	2	ELECTRONIC COMPONENT ASSY (SEE FIG 5)	C	1
R	4	609-4742-001	2	ELECTRONIC COMPONENT ASSY (SEE FIG 6)	D,E	1
	5	MS51957-2	2	SCREW,MACH SST, 2-56 X 3/16 (V96906) 343-0123-000 (AP)		4
	6	MM26-22SSGDF	2	CONNECTOR,RCPT ELEC (V95238) 372-5878-010		1
	7	A16744	2	TRANSFORMER,PWR (V70674) 662-0326-010		1
	8	MS51957-12	2	SCREW,MACH STL, 4-40 X 3/16 (V96906) 343-0132-000 (AP)		2
	9	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		1
	10	MS35335-57	2	WASHER,LOCK SST, 0.123 ID X 0.260 OD (V96906) 373-8010-000 (AP)		1
	11	4007-4HT	2	TERMINAL,LUG (V77147) 304-0015-000		1
R	11A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR K)SB17	D,E	1
	12	3SAV1272A2	2	RELAY,AMT (V01526) 974-1065-180		1
	13	3SAV1272A2	2	RELAY,AMT (V01526) 974-1065-180		1
R	13A	3SAV1272A2	2	RELAY,AMT (V01526) 974-1065-180 (EFF REV LTR K)SB17	D,E	1
	14	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP FOR 12-13A)		4
	15	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP FOR 12-13A)		4
R	15A	541-5974-002	2	STANDOFF (EFF REV LTR K)SB17	D,E	2
R	16	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 12-13)	A,B,C,F	4
	16	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 12-13) (EFF TO SB17)	D	4
R	16	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 12)(EFF SB17)	D,E	2
R	16A	MS51959-20	2	SCREW,MACH SST, 4-40 X 7/8 (V96906) 342-0051-000 (AP FOR 13-13A)(EFF SB17)	D,E	2
	17	MS3112E18-32PX	2	CONNECTOR,RCPT ELEC (V96906) 371-6608-000		1
R	17A	621-9605-001	2	ELECTRONICS COMPONENT ASSY (EFF REV LTR K)(SEE FIG 8) SB 17	D,E	1
R	18	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP FOR 17)	A,B,C,F	4
	18	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP FOR 17)(EFF TO SB17)	D	4
R	18	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP FOR 17,17A)(EFF SB17)	D,E	2
R	19	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP FOR 17)	A,B,C,F	4
	19	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP FOR 17)(EFF TO SB17)	D	4
R	19	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP FOR 17,17A)(EFF SB17)	D,E	2
R	20	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 17)	A,B,C,F	4
	20	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 17)(EFF TO SB17)	D	4
R	20	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP FOR 17,17A)(EFF SB17)	D,E	2
R	20A	MS51959-14	2	SCREW,MACH SST, 4-40 X 5/16 (V96906) 342-0045-000 (AP FOR 17,17A)(EFF SB17)	D,E	2
R	21	797-6599-001	2	COVER	A,B,F	1
	21	618-4222-001	2	COVER	C	1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R 3 21	797-7634-001	2	COVER	D,E	1
22	P330-2290-000	2	SCREW,MACH SST, 4-40 X 1/4 (V77250) 330-2290-000 (AP)		2
23	778-1553-001	2	PROTECTOR, CABLE (EFF TO CI 73263)		1
23	621-1424-001	2	PROTECTOR,CABLE (EFF CI 73263)		1
24	775-5735-001	2	FRAME, MTG		1
25	NAS1068A04	3	NUT,SLFLKG,PL CD PL STL, 4-40 (V80205) 333-0887-000		6
26	MS20426AD2-2	3	RIVET,SOLID AL, 1/16 DIA X 1/8 (V96906) 305-1351-000 (AP)		12
27	R22NCFMA1-26	3	NUT,SLFLKG CD PL STL, 2-56 (V72962) 333-0837-000		8
28	775-5387-001	3	FRAME		1

DETAILED PARTS LIST



TP2-3773-019

Electronic Component Assembly (TB1)
Figure 4

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R 4-1	797-6621-001	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-2 FOR NHA)	A,B,F	RF
-1	797-6621-002	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-2 FOR NHA)	C	RF
R 2	350-0095-010	2	SENSOR,DIFF 350-0095-010	A,B,F	1
3	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
4	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
5	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
6	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
7	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
8	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
9	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO CI 71105)SB3	A,B	1
9A	RCR07G123KS	2	RESISTOR,FXD CMPSN, 12K, 10%, 1/4W (V81349) 745-0788-000 (EFF CI 71105) SB-3	A,B	1
R 9A	RCR07G123KS	2	RESISTOR,FXD CMPSN, 12K, 10%, 1/4W (V81349) 745-0788-000	C,F	1
10	RCR07G472KS	2	RESISTOR,FXD CMPSN, 4.7K, 10%, 1/4W (V81349) 745-0773-000 (EFF TO CI 71105)SB3	A,B	1
10	RCR07G822KS	2	RESISTOR,FXD CMPSN, 8.2K, 10%, 1/4W (V81349) 745-0782-000 (EFF CI 71313) SB-5	A,B	1
R 10	RCR07G822KS	2	RESISTOR,FXD CMPSN, 8.2K, 10%, 1/4W (V81349) 745-0782-000	C,F	1
11	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR S)		1
11	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR S)		1
12	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO CI 71105)SB3	A,B	1
12A	RCR07G273KS	2	RESISTOR,FXD CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 (EFF CI 71105 TO CI 71313) SB-3	A,B	1
12A	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000 (EFF CI 71313) SB-5	A,B	1
R 12A	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000	C,F	1
13	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR S) SB-6	A,B	1
13	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR S)	C	1
13	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR S)		1
14	57-0180	2	SUPPRESSOR,PARA (V78488) 288-2154-000		1
15	RCR07G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000 (EFF TO CI 71013) SB-2	A	1
15	RCR07G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000 (EFF TO CI 71013)	B	1
15A	RCR07G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000 (EFF CI 71013 TO CI 71105)SB3	A,B	1
15B	RCR07G273KS	2	RESISTOR,FXD CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 (EFF CI 71313) SB-5	A,B	1
R 15B	RCR07G273KS	2	RESISTOR,FXD CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000	C,F	1
16	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000 (EFF TO CI 72426) SB-6	A,B	1
R 16	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000 SB-7	C,F	1
R 16A	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000 (EFF CI 72426) SB-6	A,B,F	1
R 17	109D476X0050F2	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V56289) 184-7788-000 (EFF TO REV LTR Z)		1
R 17	M39006-09-8118	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V81349) 184-9103-830 (EFF REV LTR Z)		1
R 17A	109D476X0050F2	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V56289) 184-7788-000 (EFF MCN 961 TO REV LTR Z)	A	1
R 17A	109D476X0050F2	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V56289) 184-7788-000 (EFF TO REV LTR Z)	B,C	1
R 17A	M39006-09-8118	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V81349) 184-9103-830 (EFF REV LTR Z)		1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
4 18	2N887CB1125	2	SEMICOND DEVICE (V03877) 353-3370-000		1
19	1N751A	2	SEMICOND DEVICE (V12954) 353-2710-000		1
20	1N966B	2	SEMICOND DEVICE (V04713) 353-3177-000		1
20A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250 (EFF CI 71105)SB3	A,B	1
R 20A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250	C,F	1
21	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
22	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
23	RCR07G102KS	2	RESISTOR,FXD CMPSN, 1K, 10%, 1/4W (V81349) 745-0749-000		1
24	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
25	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
25A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 71105)SB3	A,B	1
R 25A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C,F	1
26	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
27	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
28	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
29	RCR07G223KS	2	RESISTOR,FXD CMPSN, 22K, 10%, 1/4W (V81349) 745-0797-000		1
30	RN55D12R1F	2	RESISTOR,FXD FILM, 12.1 OHMS, 1%, 1/8W (V81349) 705-0904-000		1
30A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250 (EFF CI 71105)SB3	A,B	1
R 30A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250	C,F	1
31	RN55D4530F	2	RESISTOR,FXD FILM, 453 OHMS, 1%, 1/8W (V81349) 705-1469-770		1
32	RN55D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/8W (V81349) 705-1020-000		1
33	RN55D1472F	2	RESISTOR,FXD FILM, 14.7K, 1%, 1/8W (V81349) 705-1052-000		1
-33A	792-0827-001	2	LIST, RES SEL (NON PROCURABLE ITEM)		1
34	RN55D1330F	2	RESISTOR,FXD FILM, 133 OHMS, 1%, 1/8W (V81349) 705-0954-000		AR
34A	RN55D1470F	2	RESISTOR,FXD FILM, 147 OHMS, 1%, 1/8W (V81349) 705-0956-000		AR
34B	RN55D1540F	2	RESISTOR,FXD FILM, 154 OHMS, 1%, 1/8W (V81349) 705-0957-000		AR
34C	RN55D1690F	2	RESISTOR,FXD FILM, 169 OHMS, 1%, 1/8W (V81349) 705-0959-000		AR
34D	RN55D1780F	2	RESISTOR,FXD FILM, 178 OHMS, 1%, 1/8W (V81349) 705-0960-000		AR
34E	RN55D1960F	2	RESISTOR,FXD FILM, 196 OHMS, 1%, 1/8W (V81349) 705-0962-000		AR
34F	RN55D2150F	2	RESISTOR,FXD FILM, 215 OHMS, 1%, 1/8W (V81349) 705-0964-000		AR
35	RCR07G223KS	2	RESISTOR,FXD CMPSN, 22K, 10%, 1/4W (V81349) 745-0797-000		1
36	350-0093-010	2	CHOPPER,ELEK 350-0093-010		1
36A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250 (EFF CI 73036) SB-9		1
37	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR S)		1
37	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR S)		1
38	350-0011-010	2	AMPLIFIER,AC 350-0011-010		1
38A	5105-25C	2	RING,RTNG (V79136) 340-1046-010 (AP)		1
39	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR S)		1
39	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR S)		1
R 40	350-9074-010	2	GENERATOR,PULSE 350-9074-010 SB-6	A,B,F	1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

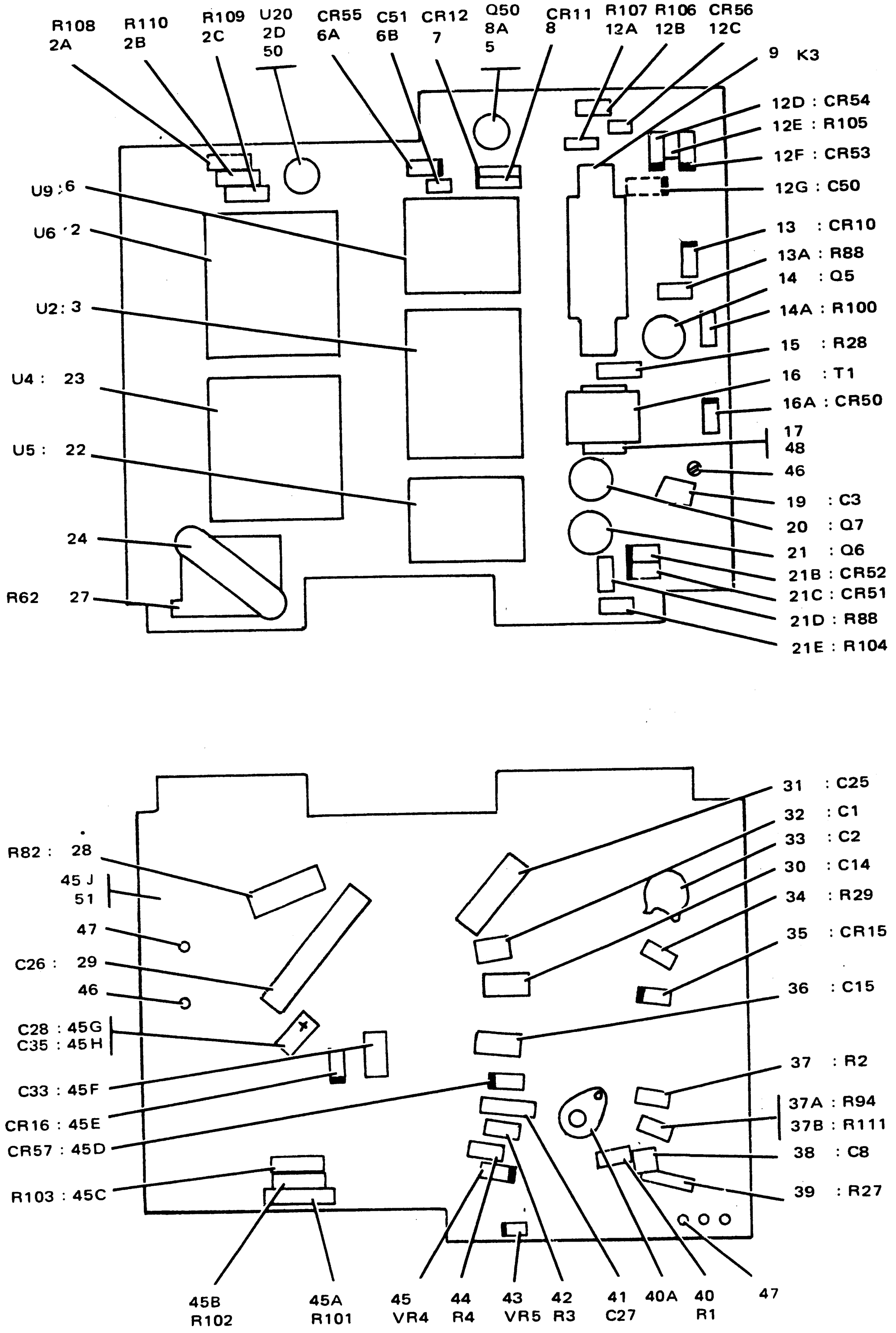
FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
4 41	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
42	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
43	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
44	RN55D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/8W (V81349) 705-1020-000		1
45	RCR07G124KS	2	RESISTOR,FXD CMPSN, 0.12MEGO, 10%, 1/4W (V81349) 745-0824-000		1
46	RCR07G824KS	2	RESISTOR,FXD CMPSN, 0.82MEGO, 10%, 1/4W (V81349) 745-0854-000		1
47	RCR07G225KS	2	RESISTOR,FXD CMPSN, 2.2MEGO, 10%, 1/4W (V81349) 745-0869-000		1
48	RS2C23-970R0F	2	RESISTOR,FXD,WW 970 OHMS, 1%, 2.5W (V91637) 747-7600-160		1
48A	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 (EFF CI 71105)SB3	A,B	1
R 48A	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000	C,F	1
49	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
50	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
50A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 71105)SB3	A,B	1
R 50A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C,F	1
51	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
52	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
53	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
53A	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 (EFF CI 71105)SB3	A,B	1
R 53A	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000	C,F	1
R 53B	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-6	A,B,F	1
53C	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-7	C	1
54	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
54A	RCR20G221KS	2	RESISTOR,FXD CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 (EFF CI 72143) SB-7	C	1
55	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
55A	RCR07G273KS	2	RESISTOR,FXD CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000 (EFF CI 71105 TO CI 71313)SB3	A,B	1
R 55B	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-6	A,B,F	1
55B	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-7	C	1
R 55C	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130 (EFF REV LTR T) SB-13	A,B,F	1
55D	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130 (EFF REV LTR U) SB-14	C	1
56	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO CI 72426) SB-6	A,B	1
56	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO CI 72426) SB-7	C	1
R 56A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-6	A,B,F	1
56A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-7	C	1
R 56B	150D105X0035A2	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 35V (V56289) 184-7398-000 (EFF CI 72426) SB-6	A,B,F	1

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
4 56B	150D105X0035A2	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 35V (V56289) 184-7398-000 (EFF CI 72426) SB-7	C	1
57	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
58	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
59	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
60	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
R 61	130D226X0070F2	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 70V (V56289) 184-7867-000 (EFF TO REV LTR Z)		1
R 61	M39006-09-8178	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 100V (V81349) 184-9104-260 (EFF REV LTR Z)		1
62	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000		1
R 62A	130D686X0040F2	2	CAPACITOR,FXD ELCTLT, 68UF, 20%, 40V (V56289) 184-6330-360 (EFF CI 72426 TO REV LTR Z) SB6	A,B	1
R 62A	130D686X0040F2	2	CAPACITOR,FXD ELCTLT, 68UF, 20%, 40V (V56289) 184-6330-360 (EFF CI 72426 TO REV LTR Z) SB7	C	1
R 62A	138D686X0060F2	2	CAPACITOR,FXD ELCTLT, 68UF, PORM20%, 60V (V56289) 184-9117-140 (EFF REV LTR Z)		1
63	RN60D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/4W (V81349) 705-6644-000 (EFF TO CI 71105)SB3	A,B	1
64	RN60D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/4W (V81349) 705-6644-000 (EFF TO CI 71105)SB3	A,B	1
R 64A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 71105) SB-3	A,B,F	1
65	805-014X5V0103Z	2	CAPACITOR,FXD CER DIEL, 0.01UF, M20%P80%, 100V (V12294) 913-3680-000 (EFF TO CI 71105)SB3	A,B	1
65A	805-014X5V0103Z	2	CAPACITOR,FXD CER DIEL, 0.01UF, M20%P80%, 100V (V12294) 913-3680-000 (EFF CI 71105)SB3	A,B	1
R 65A	805-014X5V0103Z	2	CAPACITOR,FXD CER DIEL, 0.01UF, M20%P80%, 100V (V12294) 913-3680-000	C,F	1
R 66	130D226X0070F2	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 70V (V56289) 184-7867-000 (EFF TO REV LTR Z)		1
R 66	M39006-09-8178	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 100V (V81349) 184-9104-260 (EFF REV LTR Z)		1
-67			DELETED		
68	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130		1
69	RN55D8872F	2	RESISTOR,FXD FILM, 88.7K, 1%, 1/8W (V81349) 705-1468-840		1
70	855-502X5V0203Z	2	CAPACITOR,FXD CER DIEL, 0.02UF, M20%P80%, 100V (V12294) 913-3678-000		1
70A	275001	2	FUSE,SUBMIN (V75915) 264-0931-060 (EFF REV W TO REV Y)SB18		1
R 70A	27501-5	2	FUSE,SUBMIN (V75915) 264-0931-070 (EFF REV LTR Y TO REV LTR AA)SB20,21		1
71	150D105X0035A2	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 35V (V56289) 184-7398-000		1
R 72	628-1134-001	2	TERMINAL BOARD	A,B,F	1
72	628-1135-001	2	TERMINAL BOARD	C	1
R 73	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010	A,B,F	79
R 73	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010	C	75
R 74	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100	A,B,F	16
R 74	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100	C	17
R 75	119-0507-000009	3	HOLDER,XSTR (V98291) 352-9509-000		5

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST



TP2-3774-019

Electronic Component Assembly (TB2)
Figure 5

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R 5-1	797-6625-001	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-4 FOR NHA)	A,B,F	RF
-1	618-4202-001	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-4 FOR NHA)	C	RF
2	350-9075-010	2	MONITOR,OUTPUT 350-9075-010		1
2A	RN55D5901F	2	RESISTOR,FXD FILM, 5.9K, 10%, 1/8W (V81349) 705-1033-000	C	1
2B	RN55D3241F	2	RESISTOR,FXD FILM, 3.24K, 1%, 1/8W (V81349) 705-3605-240	C	1
2C	RN55D2003F	2	RESISTOR,FXD FILM, 200K, 1%, 1/8W (V81349) 705-3604-150	C	1
2D	MC1558G	2	INTEGRATED CKT (V04713) 351-1071-020	C	1
3	350-0083-030	2	AMPLIFIER,ELEC 350-0083-030		1
-4	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP)		1
-5	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		1
6	350-9076-010	2	LOGIC OUTPUT 350-9076-010		1
6A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1
6B	CK06BX105M	2	CAPACITOR,FXD CER DIEL, 1UF, 20%, 50V (V81349) 913-5019-840	C	1
7	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
8	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
8A	2N718A	2	TRANSISTOR (V01295) 352-0318-000	C	1
9	3SAV1272A2	2	RELAY,AMT (V01526) 974-1065-180		1
-10	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP)		2
-11	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		2
-12	MS51957-12	2	SCREW,MACH STL, 4-40 X 3/16 (V96906) 343-0132-000 (AP)		2
12A	RCR07G393KS	2	RESISTOR,FXD CMPSN, 39K, 10%, 1/4W (V81349) 745-0806-000	C	1
12B	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000	C	1
12C	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1
12D	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1
12E	RN55D1503F	2	RESISTOR,FXD FILM, 150K, 1%, 1/8W (V81349) 705-3604-090	C	1
12F	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1
12G	177D101	2	CAPACITOR,FXD ELCTLT, 19UF, P10%M5%, 20V (V56289) 184-9093-020	C	1
13	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
13A	RCR05G105JS	2	RESISTOR,FXD CMPSN, 1MEGO, 5%, 1/8W (V81349) 745-1864-250 (EFF MCN 961)	A	1
13A	RCR05G105JS	2	RESISTOR,FXD CMPSN, 1MEGO, 5%, 1/8W (V81349) 745-1864-250	B	1
14	2N718A	2	TRANSISTOR (V01295) 352-0318-000		1
14A	RN55D6491F	2	RESISTOR,FXD FILM, 6.49K, 1%, 1/8W (V81349) 705-1035-000 (EFF TO CI 72304)	C	1
14A	RN55D1003F	2	RESISTOR,FXD FILM, 100K, 1%, 1/8W (V81349) 705-1454-870 (EFF CI 72304)	C	1
15	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
16	SAE111	2	TRANSFORMER,AF (V80223) 667-0218-010		1
16A	1N4109	2	SEMICOND DEVICE (V04713) 353-3591-110	C	1
17	6009-8A	2	CLIP,COMPONENT (V91506) 139-2336-000	A,B,F	1
-18	R4008X3-32CHROMATEDP	2	RIVET,TUBULAR AL, 0.089 DIA X 3/32 (V12014) 305-0169-000 (AP)	A,B,F	1
19	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130		1
20	2N2907A	2	TRANSISTOR (V04713) 352-0551-010		1
21	2N3700	2	TRANSISTOR (V49956) 352-0734-020		1
21A			DELETED		
21A			DELETED		
21B	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1
21C	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000	C	1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	5 21D	RCR05G105JS	2	RESISTOR,FXD CMPSN, 1MEGO, 5%, 1/8W (V81349) 745-1864-250	C	1
	21E	RN55D6491F	2	RESISTOR,FXD FILM, 6.49K, 1%, 1/8W (V81349) 705-1035-000	C	1
	22	350-9077-010	2	AUDIO WARN INP 350-9077-010		1
	23	350-9078-010	2	AUDIO WARN IN 350-9078-010		1
	24	767-7765-001	2	HOLDER, RES		1
	-25	MS51957-5	2	SCREW,MACH SST, 2-56 X 3/8 (V96906) 343-0126-000 (AP)		2
	-26	310-0070-000	2	WASHER,LOCK SST, 0.097 ID X 0.165 OD (V79807) 310-0070-000 (AP)		2
	27	3250LC10-501	2	RESISTOR,VAR 500 OHMS, 5%, 1W (V80294) 381-1846-060		1
	28	RN60D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/4W (V81349) 705-6620-000		1
	29	151D505X9020X2	2	CAPACITOR,FXD ELCTLT, 5UF, 10%, 20V (V56289) 184-8366-000		1
	30	130D255C2070C2	2	CAPACITOR,FXD ELCTLT, 2.5UF, M15%P20%, 70V (V56289) 184-7870-000 (EFF THRU MCN 960) SB-2	A	1
	30	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500 (EFF MCN 961) SB-2	A	1
R	30	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500	B,F	1
R	31	CL33BG1R5MNE	2	CAPACITOR,FXD ELCTLT, 1.5UF, 20%, 25V (V81349) 184-7943-000	A,B,F	1
R	31	CL33BG1R5MNE	2	CAPACITOR,FXD ELCTLT, 1.5UF, 20%, 25V (V81349) 184-7943-000 (EFF TO REV LTR F)	C	1
R	31	M39006-02-2217	2	CAPACITOR,FXD ELCTLT, 1.5UF, M15%P50%, 75V (V81349) 184-9106-300 (EFF REV LTR F)	C	1
	32	150D104X0035A2	2	CAPACITOR,FXD ELCTLT, 0.1UF, 20%, 35V (V56289) 184-7408-000		1
	33	40C73A1	2	CAPACITOR,FXD CER DIEL, 1000PF, 20%, 500V (V56289) 913-3009-000		1
	34	RCR07G123KS	2	RESISTOR,FXD CMPSN, 12K, 10%, 1/4W (V81349) 745-0788-000		1
	35	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	36	130D255C2070C2	2	CAPACITOR,FXD ELCTLT, 2.5UF, M15%P20%, 70V (V56289) 184-7870-000 (EFF THRU MCN 960) SB-2	A	1
	36	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500 (EFF MCN 961) SB-2	A	1
R	36	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500	B,F	1
	37	RN55D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/8W (V81349) 705-1454-630		1
R	37A	RCR32G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1W (V81349) 745-3356-000 (EFF REV LTR J) SB-13	A,B,F	1
	37B	RCR32G102KS	2	RESISTOR,FXD CMPSN, 1K, 10%, 1W (V81349) 745-3352-000 (EFF REV LTR D) SB-14	C	1
	38	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130		1
	39	RCR07G332KS	2	RESISTOR,FXD CMPSN, 3.3K, 10%, 1/4W (V81349) 745-0767-000		1
	40	RN55D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/8W (V81349) 705-1454-630		1
R	40A	4040-5HDSPL	2	TERMINAL,LUG (V77147) 304-0332-000 (EFF REV LTR J) SB-13	A,B,F	1
	40A	4040-5HDSPL	2	TERMINAL,LUG (V77147) 304-0332-000 (EFF REV LTR D) SB-14	C	1
R	-40B	MS51957-13	2	SCREW,MACH STL, 4-40 X 1/4 (V96906) 343-0133-000 (AP) (EFF REV LTR J) SB-13	A,B,F	1
R	-40B	MS51957-13	2	SCREW,MACH STL, 4-40 X 1/4 (V96906) 343-0133-000 (AP) (EFF REV LTR D) SB-14	C	1
	41	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
	42	RN55D1003F	2	RESISTOR,FXD FILM, 100K, 1%, 1/8W (V81349) 705-1454-870		1

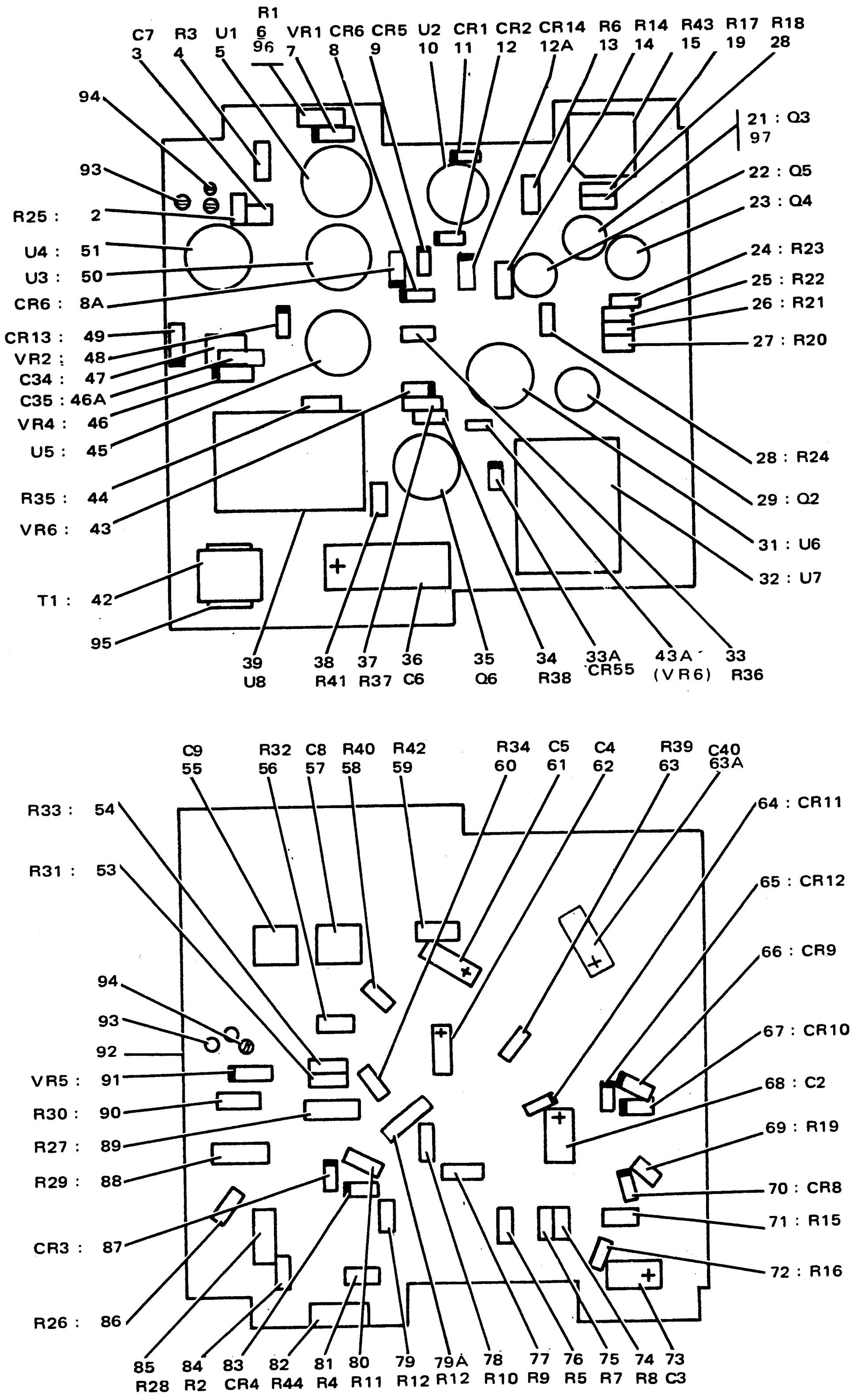
- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	5 43	1N751A	2	SEMICOND DEVICE (V12954) 353-2710-000		1
	44	RN55D1003F	2	RESISTOR,FXD FILM, 100K, 1%, 1/8W (V81349) 705-1454-870		1
	45	1N965B	2	SEMICOND DEVICE (V04713) 353-3176-000		1
	45A	RN60D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/4W (V81349) 705-6620-000		1
	45B	RN55D1331F	2	RESISTOR,FXD FILM, 1.33K, 1%, 1/8W (V81349) 705-1002-000	C	1
	45C	RN55D2613F	2	RESISTOR,FXD FILM, 261K, 1%, 1/8W (V81349) 705-1112-000	C	1
	45D	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72443) SB-7	C	1
R	45E	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF CI 72426) SB-6	A,B,F	1
R	45F	130D686X0040F2	2	CAPACITOR,FXD ELCTLT, 68UF, 20%, 40V (V56289) 184-6330-360 (EFF CI 72443 TO REV LTR F)SB-7	C	1
R	45F	M39006-02-2217	2	CAPACITOR,FXD ELCTLT, 1.5UF, M15%P50%, 75V (V81349) 184-9106-300 (EFF REV LTR F)	C	1
	45G	130D686X0040F2	2	CAPACITOR,FXD ELCTLT, 68UF, 20%, 40V (V56289) 184-6330-360 (EFF CI 72426 TO REV LTR J)	A,B	1
R	45H	130D686X0040F2	2	CAPACITOR,FXD ELCTLT, 68UF, 20%, 40V (V56289) 184-6330-360 (EFF REV LTR J)	A,B,F	1
R	45J	628-1058-001	2	TERMINAL BOARD	A,B,F	1
	45J	618-4201-001	2	TERMINAL BOARD	C	1
R	46	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010	A,B,F	62
	46	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010	C	82
R	47	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100	A,B,F	6
	47	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100	C	16
	48	6009-8A	3	CLIP,COMPONENT (V91506) 139-2336-000		1
	-49	R4008X3-32CHROMA TEDP	3	RIVET,TUBULAR AL, 0.089 DIA X 3/32 (V12014) 305-0169-000 (AP)		1
	-50	119-0506-000009	3	HOLDER,XSTR (V98291) 352-9508-000 (AP)	C	1
R	51	119-0507-000009	3	HOLDER,XSTR (V98291) 352-9509-000	A,B,F	3
	51	119-0507-000009	3	HOLDER,XSTR (V98291) 352-9509-000	C	4
	52	618-4196-001	3	BOARD, FAB	C	1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST



TP3-1405-019

Electronic Component Assembly A1
Figure 6

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
6-1	609-4742-001	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-4 FOR NHA)	D	RF
2	RN55D3162F	2	RESISTOR,FXD FILM, 31.6K, 1%, 1/8W (V81349) 705-1454-750		1
3	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130		1
4	RN55D1132F	2	RESISTOR,FXD FILM, 11.3K, 1%, 1/8W (V81349) 705-1468-440		1
5	UA741HM	2	INTEGRATED CKT (V07263) 351-1029-010		1
6	RN60D5623F	2	RESISTOR,FXD FILM, 562K, 1%, 1/4W (V81349) 705-6728-000		1
7	JAN1N758A	2	SEMICOND DEVICE (V81350) 353-2985-000		1
8	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010 (EFF TO REV LTR D) SB-12		1
8A	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010 (EFF REV LTR D) SB-12		1
9	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
10	MC1558G	2	INTEGRATED CKT (V04713) 351-1071-020		1
11	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
12	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
12A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR D) SB-12		1
13	RN55D3092F	2	RESISTOR,FXD FILM, 30.9K, 1%, 1/8W (V81349) 705-1468-620		1
14	RCR07G822KS	2	RESISTOR,FXD CMPSN, 8.2K, 10%, 1/4W (V81349) 745-0782-000		1
15	3250LC10-501	2	RESISTOR,VAR 500 OHMS, 5%, 1W (V80294) 381-1846-060		1
-16	MS51957-5	2	SCREW,MACH SST, 2-56 X 3/8 (V96906) 343-0126-000 (AP)		2
-17	310-0070-000	2	WASHER,LOCK SST, 0.097 ID X 0.165 OD (V79807) 310-0070-000 (AP)		2
-18	767-7765-001	2	HOLDER (AP)		1
19	RCR07G822KS	2	RESISTOR,FXD CMPSN, 8.2K, 10%, 1/4W (V81349) 745-0782-000		1
20	RCR07G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000		1
21	2N2907A	2	TRANSISTOR (V04713) 352-0551-010		1
22	2N3910	2	TRANSISTOR (V12498) 352-0692-010		1
23	2N956	2	TRANSISTOR (V07263) 352-0400-010		1
24	RCR07G393KS	2	RESISTOR,FXD CMPSN, 39K, 10%, 1/4W (V81349) 745-0806-000		1
25	RN55D2802F	2	RESISTOR,FXD FILM, 28K, 1%, 1/8W (V81349) 705-1471-010		1
26	RN55D2802F	2	RESISTOR,FXD FILM, 28K, 1%, 1/8W (V81349) 705-1471-010		1
27	RCR07G393KS	2	RESISTOR,FXD CMPSN, 39K, 10%, 1/4W (V81349) 745-0806-000		1
28	RCR07G563KS	2	RESISTOR,FXD CMPSN, 56K, 10%, 1/4W (V81349) 745-0812-000		1
29	2N956	2	TRANSISTOR (V07263) 352-0400-010		1
-30	119-0507-000009	2	HOLDER,XSTR (V98291) 352-9509-000 (AP) (EFF TO REV LTR F)		4
31	UA741HM	2	INTEGRATED CKT (V07263) 351-1029-010		1
32	350-9075-010	2	MONITOR,OUTPUT 350-9075-010		1
33	RN55D2492F	2	RESISTOR,FXD FILM, 24.9K, 1%, 1/8W (V81349) 705-1470-980		1
33A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR F) SB-15		1
34	RN55D3742F	2	RESISTOR,FXD FILM, 37.4K, 1%, 1/8W (V81349) 705-1468-660		1
35	2N4236	2	TRANSISTOR (V07263) 352-0695-050		1
36	M39003-01-2141	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 50V (V81349) 184-9084-680		1
37	RCR07G105KS	2	RESISTOR,FXD CMPSN, 1MEGO, 10%, 1/4W (V81349) 745-0857-000		1

- ITEM NOT ILLUSTRATED

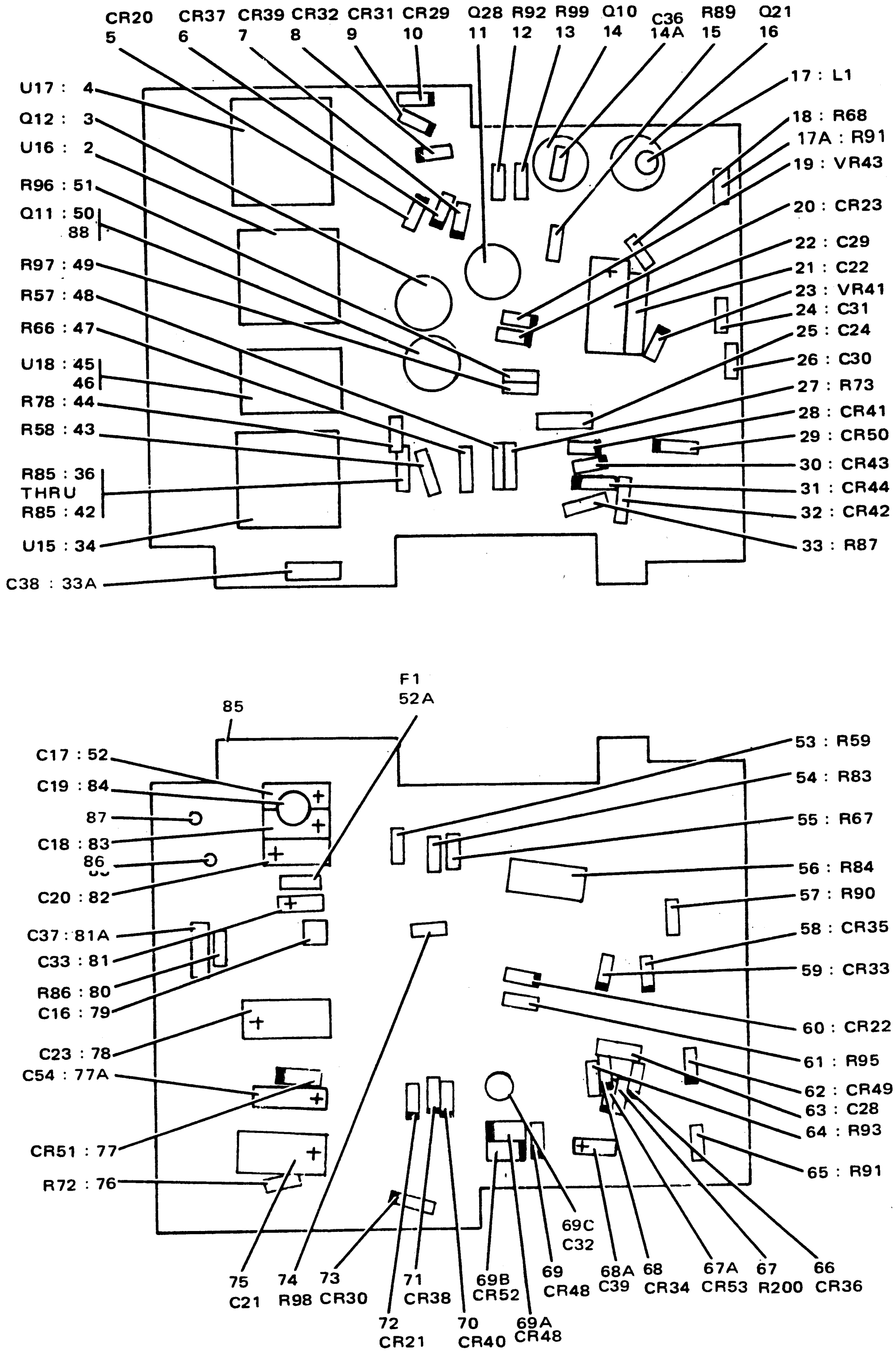
DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
	6 38	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000		1
	39	350-0083-030	2	AMPLIFIER,ELEC 350-0083-030		1
	-40	P313-0132-000	2	NUT,PLAIN,HEX SST, 4-40 (V77250) 313-0132-000 (AP)		1
	-41	310-0278-000	2	WASHER,LOCK SST, 0.115 ID X 0.202 OD (V70318) 310-0278-000 (AP)		1
	42	ER377	2	TRANSFORMER,AF (V80223) 677-1287-000		1
R	43	1N965B	2	SEMICOND DEVICE (V04713) 353-3176-000 (EFF TO REV LTR H)		1
R	43	1N4744A	2	SEMICOND DEVICE (V04713) 353-6481-330 (EFF REV LTR H TO REV LTR K)SB24		1
R	43A	1N4744A	2	SEMICOND DEVICE (V04713) 353-6481-330 (EFF REV LTR K)SB24		1
	44	RN55D3013F	2	RESISTOR,FXD FILM, 301K, 1%, 1/8W (V81349) 705-1471-240		1
	45	UA741HM	2	INTEGRATED CKT (V07263) 351-1029-010		1
	46	LVA375A	2	SEMICOND DEVICE (V01281) 353-6532-170		1
	46A	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130 (EFF REV LTR E)		1
	47	CK06BX564K	2	CAPACITOR,FXD CER DIEL, 0.56UF, 10%, 50V (V81349) 913-5019-530		1
	48	JAN1N964B	2	SEMICOND DEVICE (V81350) 353-3086-000		1
	49	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	50	UA741HM	2	INTEGRATED CKT (V07263) 351-1029-010		1
	51	UA741HM	2	INTEGRATED CKT (V07263) 351-1029-010		1
	-52	119-0506-000009	2	HOLDER,XSTR (V98291) 352-9508-000 (AP) (EFF TO REV LTR F)		7
	53	RN55D1102F	2	RESISTOR,FXD FILM, 11K, 1%, 1/8W (V81349) 705-1454-640		1
	54	RN55D2672F	2	RESISTOR,FXD FILM, 26.7K, 1%, 1/8W (V81349) 705-1468-600		1
	55	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500		1
	56	RN55D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/8W (V81349) 705-1454-630		1
	57	CK06BX334K	2	CAPACITOR,FXD CER DIEL, 0.33UF, 10%, 50V (V81349) 913-5019-500		1
	58	RCR07G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/4W (V81349) 745-0785-000		1
	59	RL42S911G	2	RESISTOR,FXD FILM, 910 OHMS, 2%, 2W (V81349) 745-7121-000		1
	60	RN55D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/8W (V81349) 705-1454-630		1
	61	M39003-01-2117	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 50V (V81349) 184-9084-440		1
	62	M39003-01-2117	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 50V (V81349) 184-9084-440		1
	63	RN55D1002F	2	RESISTOR,FXD FILM, 10K, 1%, 1/8W (V81349) 705-1454-630		1
R	63A	130D107X0040F2	2	CAPACITOR,FXD ELCTLT, 100UF, 20%, 40V (V56289) 184-6330-370 (EFF REV LTR F TO REV LTR J) SB15-		1
R	63A	M39006-21-0059	2	CAPACITOR,FXD ELCTLT, 100UF, PORM20%, 60V (V81349) 184-9116-110 (EFF REV LTR J)		1
	64	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	65	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	66	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	67	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	68	LP88A1V223J	2	CAPACITOR,FXD PLSTC DIEL, 0.022UF, 5%, 150V (V56289) 933-1084-050		1
	69	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000		1
	70	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
	71	RN55D1743F	2	RESISTOR,FXD FILM, 174K, 1%, 1/8W (V81349) 705-1468-970		1
	72	RN55D1743F	2	RESISTOR,FXD FILM, 174K, 1%, 1/8W (V81349) 705-1468-970		1

- ITEM NOT ILLUSTRATED

DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
6 73	LP88A1V223J	2	CAPACITOR,FXD PLSTC DIEL, 0.022UF, 5%, 150V (V56289) 933-1084-050		1
74	RN55D2102F	2	RESISTOR,FXD FILM, 21K, 1%, 1/10W (V81349) 705-1468-550		1
75	RN55D1242F	2	RESISTOR,FXD FILM, 12.4K, 1%, 1/8W (V81349) 705-1470-890		1
76	RN55D5111F	2	RESISTOR,FXD FILM, 5.11K, 1%, 1/8W (V81349) 705-1454-560		1
77	RN55D1872F	2	RESISTOR,FXD FILM, 18.7K, 1%, 1/8W (V81349) 705-1470-940		1
78	RN55D1872F	2	RESISTOR,FXD FILM, 18.7K, 1%, 1/8W (V81349) 705-1470-940		1
79	RCR07G272KS	2	RESISTOR,FXD CMPSN, 2.7K, 10%, 1/4W (V81349) 745-0764-000 (EFF TO REV LTR D) SB-12		1
79A	RCR07G472KS	2	RESISTOR,FXD CMPSN, 4.7K, 10%, 1/4W (V81349) 745-0773-000 (EFF REV LTR D) SB-12		1
80	RN55D1003F	2	RESISTOR,FXD FILM, 100K, 1%, 1/8W (V81349) 705-1454-870		1
81	RCR07G395KS	2	RESISTOR,FXD CMPSN, 3.9MEGO, 10%, 1/4W (V81349) 745-0878-000		1
82	RN60D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/4W (V81349) 705-6620-000		1
83	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
84	RN55D1152F	2	RESISTOR,FXD FILM, 11.5K, 1%, 1/8W (V81349) 705-1470-880		1
85	RN55D2743F	2	RESISTOR,FXD FILM, 274K, 1%, 1/8W (V81349) 705-1113-000		1
86	RN55D3162F	2	RESISTOR,FXD FILM, 31.6K, 1%, 1/8W (V81349) 705-1454-750		1
87	1N4454	2	SEMICOND DEVICE (V03508) 353-3644-010		1
88	MEA383K1PCTT1	2	RESISTOR,FXD FILM, 383K, 1%, 1/8W (V07716) 705-0685-000		1
89	RN60D9533F	2	RESISTOR,FXD FILM, 953K, 1%, 1/4W (V81349) 705-6739-000		1
90	RN55D4532F	2	RESISTOR,FXD FILM, 45.3K, 1%, 1/8W (V81349) 705-1468-700		1
91	LVA51A	2	SEMICOND DEVICE (V01281) 353-6532-030		1
92	628-1151-001	2	TERMINAL BOARD		1
93	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100		26
94	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010		95
95	761-2956-002	3	CLIP		1
96	119-0506-000009	3	HOLDER,XSTR (V98291) 352-9508-000 (EFF REV LTR F)		7
97	119-0507-000009	3	HOLDER,XSTR (V98291) 352-9509-000 (EFF REV LTR F)		4



TP3-8184-019

Electronic Component Assembly A2
Figure 7

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R	7-1	609-4743-001	1	ELECTRONIC COMPONENT ASSEMBLY (SEE FIG 3-2 FOR NHA)	D,E	RF
	2	350-9074-010	2	GENERATOR,PULSE 350-9074-010		1
	3	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR H)		1
	3	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR H)		1
	4	350-0095-010	2	SENSOR,DIFF 350-0095-010		1
	5	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	6	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	7	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	8	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	9	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	10	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	11	2N887CB1125	2	SEMICOND DEVICE (V03877) 353-3370-000		1
	12	RCR07G123KS	2	RESISTOR,FXD CMPSN, 12K, 10%, 1/4W (V81349) 745-0788-000		1
	13	RCR07G822KS	2	RESISTOR,FXD CMPSN, 8.2K, 10%, 1/4W (V81349) 745-0782-000		1
	14	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR H)		1
	14	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR H)		1
	14A	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130 (EFF REV LTR J) SB-15		1
	15	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
	16	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR H)		1
	16	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR H)		1
	17	57-0180	2	SUPPRESSOR,PARA (V78488) 288-2154-000		1
	17A	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 (EFF CI 72333)(SEE ITEM 65)		1
	18	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000 SB-15		1
	19	1N751A	2	SEMICOND DEVICE (V12954) 353-2710-000		1
	20	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
R	21	109D476X0050F2	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V56289) 184-7788-000 (EFF TO REV LTR S)		1
R	21	M39006-09-8118	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V81349) 184-9103-830 (EFF REV LTR S)		1
R	22	109D476X0050F2	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V56289) 184-7788-000 (EFF TO REV LTR S)		1
R	22	M39006-09-8118	2	CAPACITOR,FXD ELCTLT, 47UF, 20%, 50V (V81349) 184-9103-830 (EFF REV LTR S)		1
	23	1N966B	2	SEMICOND DEVICE (V04713) 353-3177-000		1
	24	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
	25	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
	26	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
	27	RN55D12R1F	2	RESISTOR,FXD FILM, 12.1 OHMS, 1%, 1/8W (V81349) 705-0904-000		1
	28	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	29	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	30	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	31	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	32	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO CI 72253)		1
	33	RCR07G223KS	2	RESISTOR,FXD CMPSN, 22K, 10%, 1/4W (V81349) 745-0797-000		1
	33A	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250 (EFF REV LTR J) SB-15		1
	34	350-0093-010	2	CHOPPER,ELEK 350-0093-010		1
	-35	792-0827-001	2	RESISTOR KIT (NON-PROCURABLE ITEM)		1
	36	RN55D1330F	2	RESISTOR,FXD FILM, 133 OHMS, 1%, 1/8W (V81349) 705-0954-000		AR

- ITEM NOT ILLUSTRATED

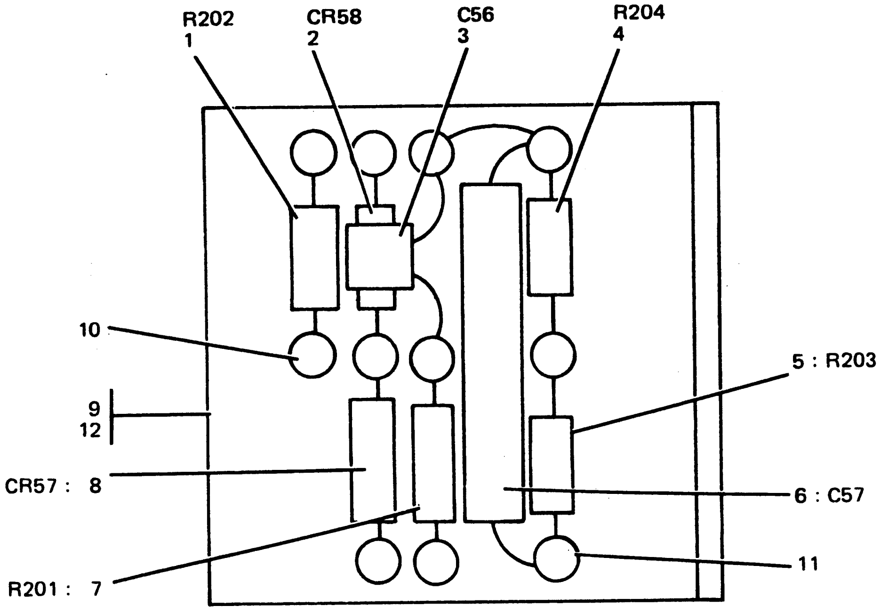
DETAILED PARTS LIST

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
7 37	RN55D1470F	2	RESISTOR,FXD FILM, 147 OHMS, 1%, 1/8W (V81349) 705-0956-000		AR
38	RN55D1540F	2	RESISTOR,FXD FILM, 154 OHMS, 1%, 1/8W (V81349) 705-0957-000		AR
39	RN55D1690F	2	RESISTOR,FXD FILM, 169 OHMS, 1%, 1/8W (V81349) 705-0959-000		AR
40	RN55D1780F	2	RESISTOR,FXD FILM, 178 OHMS, 1%, 1/8W (V81349) 705-0960-000		AR
41	RN55D1960F	2	RESISTOR,FXD FILM, 196 OHMS, 1%, 1/8W (V81349) 705-0962-000		AR
42	RN55D2150F	2	RESISTOR,FXD FILM, 215 OHMS, 1%, 1/8W (V81349) 705-0964-000		AR
43	RN55D1472F	2	RESISTOR,FXD FILM, 14.7K, 1%, 1/8W (V81349) 705-1052-000		1
44	RCR07G223KS	2	RESISTOR,FXD CMPSN, 22K, 10%, 1/4W (V81349) 745-0797-000		1
45	350-0011-010	2	AMPLIFIER,AC 350-0011-010		1
46	5105-25C	2	RING,RTNG (V79136) 340-1046-010 (AP)		1
47	RN55D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/8W (V81349) 705-1020-000		1
48	RN55D4530F	2	RESISTOR,FXD FILM, 453 OHMS, 1%, 1/8W (V81349) 705-1469-770		1
49	RCR07G102KS	2	RESISTOR,FXD CMPSN, 1K, 10%, 1/4W (V81349) 745-0749-000		1
50	2N956SS9315	2	TRANSISTOR (V04713) 352-0400-030 (EFF TO REV LTR H)		1
50	2N956	2	TRANSISTOR (V07263) 352-0400-010 (EFF REV LTR H)		1
50A			DELETED		
51	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
52	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
52A	275001	2	FUSE,SUBMIN (V75915) 264-0931-060 (EFF REV LTR L TO REV LTR P)SB18		1
R 52A	27501-5	2	FUSE,SUBMIN (V75915) 264-0931-070 (EFF REV LTR P TO REV LTR S)SB20,SB21		1
53	RN55D3161F	2	RESISTOR,FXD FILM, 3.16K, 1%, 1/8W (V81349) 705-1020-000		1
54	RCR07G824KS	2	RESISTOR,FXD CMPSN, 0.82MEGO, 10%, 1/4W (V81349) 745-0854-000		1
55	RCR07G225KS	2	RESISTOR,FXD CMPSN, 2.2MEGO, 10%, 1/4W (V81349) 745-0869-000		1
56	RS2C23-970R0F	2	RESISTOR,FXD,WW 970 OHMS, 1%, 2.5W (V91637) 747-7600-160 (EFF TO CI 72135)		1
57	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000		1
58	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
59	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
60	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
61	RCR07G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/4W (V81349) 745-0791-000		1
62	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
63	C22C104K	2	CAPACITOR,FXD CER DIEL, 100,000PF, 10%, 50V (V16546) 913-5661-250		1
64	RCR07G273KS	2	RESISTOR,FXD CMPSN, 27K, 10%, 1/4W (V81349) 745-0800-000		1
65	RCR07G104KS	2	RESISTOR,FXD CMPSN, 0.10MEGO, 10%, 1/4W (V81349) 745-0821-000 (EFF TO CI 72333) SEE ITEM 17A		1
66	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
67	RCR20G221KS	2	RESISTOR,FXD CMPSN, 220 OHMS, 10%, 1/2W (V81349) 745-1324-000 (EFF TO REV LTR J) SB-15		1
67A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR J) SB-15		1
68	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1

DETAILED PARTS LIST

	FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
R	7 68A	130D206X0050C2	2	CAPACITOR,FXD ELCTLT, 20UF, 20%, 50V (V56289) 184-6330-410 (EFF REV LTR J TO REV LTR S) SB-15		1
R	68A	138D206X0075C2	2	CAPACITOR,FXD ELCTLT, 20UF, PORM20%, 75V (V56289) 184-9117-170 (EFF REV LTR S)		1
	69	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO REV LTR J) SB-15		1
	69A	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR J) SB-15		1
	69B	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF REV LTR J) SB-15		1
	69C	805-014X5V0103Z	2	CAPACITOR,FXD CER DIEL, 0.01UF, M20%P80%, 100V (V12294) 913-3680-000		1
	70	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	71	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	72	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	73	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
	74	RCR07G124KS	2	RESISTOR,FXD CMPSN, 0.12MEGO, 10%, 1/4W (V81349) 745-0824-000		1
R	75	130D226X0070F2	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 70V (V56289) 184-7867-000 (EFF TO REV LTR S)		1
R	75	M39006-09-8178	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 100V (V81349) 184-9104-260 (EFF REV LTR S)		1
	76	RCR07G122KS	2	RESISTOR,FXD CMPSN, 1.2K, 10%, 1/4W (V81349) 745-0752-000		1
	77	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
R	77A	130D107X0040F2	2	CAPACITOR,FXD ELCTLT, 100UF, 20%, 40V (V56289) 184-6330-370 (EFF REV LTR J TO REV LTR S)		1
R	77A	M39006-21-0059	2	CAPACITOR,FXD ELCTLT, 100UF, PORM20%, 60V (V81349) 184-9116-110 (EFF REV LTR S)		1
R	78	130D226X0070F2	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 70V (V56289) 184-7867-000 (EFF TO REV LTR S)		1
R	78	M39006-09-8178	2	CAPACITOR,FXD ELCTLT, 22UF, 20%, 100V (V81349) 184-9104-260 (EFF REV LTR S)		1
	79	ET05W5R103M	2	CAPACITOR,FXD CER DIEL, 10,000PF, 20%, 75V (V72982) 913-4496-130		1
	80	RN55D8872F	2	RESISTOR,FXD FILM, 88.7K, 1%, 1/8W (V81349) 705-1468-840		1
	81	150D105X0035A2	2	CAPACITOR,FXD ELCTLT, 1UF, 20%, 35V (V56289) 184-7398-000		1
	81A	CK05BX102K	2	CAPACITOR,FXD CER DIEL, 1000PF, 10%, 200V (V81349) 913-4018-000 (EFF REV LTR J) SB-15		1
	82	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
	83	150D475X0035B2	2	CAPACITOR,FXD ELCTLT, 4.7UF, 20%, 35V (V56289) 184-7396-000		1
	84	855-502X5V0203Z	2	CAPACITOR,FXD CER DIEL, 0.02UF, M20%P80%, 100V (V12294) 913-3678-000		1
	85	628-1176-001	2	TERMINAL BOARD		1
	86	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010 (EFF TO CI 73023)		77
	86	SL354-351WHT	3	TERMINAL,FEEDTH (V12615) 306-2474-010 (EFF CI 73023)		76
	87	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100 (EFF TO CI 73023)		21
	87	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100 (EFF CI 73023)		17
	88	119-0507-000009	3	HOLDER,XSTR (V98291) 352-9509-000		5

DETAILED PARTS LIST



TP4-6952-019

Electronic Component Assembly A3
Figure 8

FIG-ITEM	PART NUMBER	INDENT	NOMENCLATURE	EFFECT CODE	UNITS PER ASSY
8-	621-9605-001	1	ELECTRONIC COMPONENT ASSY (SEE FIG 2-17A FOR NHA)		RF
1	RCR05G333KS	2	RESISTOR,FXD CMPSN, 33K, 10%, 1/8W (V81349) 745-2395-000		1
2	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000 (EFF TO REV LTR B)		1
3	CK05BX104K	2	CAPACITOR,FXD CER DIEL, 0.1UF, 10%, 50V (V81349) 913-5019-320		1
R 4	RCR05G103KS	2	RESISTOR,FXD CMPSN, 10K, 10%, 1/8W (V81349) 745-2377-000 (EFF TO REV LTR D) SB23		1
R 4	RCR05G153KS	2	RESISTOR,FXD CMPSN, 15K, 10%, 1/8W (V81349) 745-2383-000 (EFF REV LTR D) SB23		1
5	RCR05G333KS	2	RESISTOR,FXD CMPSN, 33K, 10%, 1/8W (V81349) 745-2395-000		1
6	151D116X0015X2	2	CAPACITOR,FXD ELCTLT, 11UF, 20%, 15V (V56289) 184-8284-000		1
7	RCR05G274KS	2	RESISTOR,FXD CMPSN, 270K, 10%, 1/8W (V81349) 745-2428-000 (EFF TO REV LTR C)SB19		1
7	RCR05G104KS	2	RESISTOR,FXD CMPSN, 100K, 10%, 1/8W (V81349) 745-2413-000 (EFF REV LTR C TO REV LTR D)SB19,SB23		1
R 7	RCR05G473KS	2	RESISTOR,FXD CMPSN, 47K, 10%, 1/8W (V81349) 745-2401-000 (EFF REV LTR D) SB23		1
8	1N645	2	SEMICOND DEVICE (V15238) 353-2607-000		1
9	621-9604-001	2	TERMINAL BOARD		1
10	SL441-434WHT	3	TERMINAL,STDF (V12615) 306-2222-100		11
11	333-1455-020	3	NUT,SLFLKG CD PL STL, 4-40 (V27687) 333-1455-020		2
12	621-9604-002	3	BOARD		1

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		2-141	2
		2-151	4
		2-162	4
		2-214	2
AN565D4L2		1-3	2
A1165		2-137	1
		2-137	1
A16744		3-7	1
B0250-013		2-232	1
CK05BX102K		7-81A	1
CK05BX104K		8-3	1
CK06BX105M		5-6B	1
CK06BX334K		5-30	1
		5-30	1
		5-36	1
		5-36	1
		6-55	1
		6-57	1
CK06BX564K		6-47	1
CL33BG1R5MNE		5-31	1
		5-31	1
CL40820006		2-221	1
CM6839		2-5	1
		2-6	1
CM715ASP15PCTM15PCT		2-25A	4
C22C104K		4-20A	1
		4-20A	1
		4-24	1
		4-30A	1
		4-30A	1
		4-36A	1
		4-53	1
		5-41	1
		7-24	1
		7-25	1
		7-26	1
		7-33A	1
		7-63	1
ER377		6-42	1
ET05W5R103M		4-55C	1
		4-55D	1
		4-68	1
		5-19	1
		5-38	1
		6-3	1
		6-46A	1
		7-14A	1
		7-79	1
JAN1N758A		6-7	1
JAN1N964B		6-48	1
LC026C1		2-168	1
LP88A1V223J		6-68	1
		6-73	1
LVA375A		6-46	1
LVA51A		6-91	1
MC1558G		5-2D	1
		6-10	1
MEA383K1PCTT1		6-88	1
MM26-22PSLGDF		2-35	1
MM26-22SSGDF		3-6	1
MS16562-190		2-158	1
MS16562-193		2-181	2
MS16624-5012		2-78	1
		2-82	1
		2-96	1
		2-100	1
MS16624-5018		2-199	1
MS16633-1009		2-51	2
MS16633-1012		2-231	1
MS16633-5004		2-18	2
MS20426AD2-2		3-26	12
MS24515-718		2-5	1
		2-6	1
MS24547-1		2-26	1
MS3112E18-32PX		3-17	1
MS35335-57		3-10	1
MS35338-134		2-198	3
		2-205	2
		2-212	2
		2-220	2
		2-227	1
MS51923-111		2-11	1
MS51957-12		3-8	2
		5-12	2
MS51957-13		5-40B	1
		5-40B	1
MS51957-2		3-3	4
		3-5	4
MS51957-3		2-226	1
MS51957-5		5-25	2
		6-16	2
MS51959-14		3-20A	2
MS51959-20		3-16A	2
MS51959-4		2-188	3
M39003-01-2117		6-61	1
		6-62	1
M39003-01-2141		6-36	1
M39006-02-2217		5-31	1
		5-45F	1
M39006-09-8118		4-17	1
		4-17A	1
		7-21	1
		7-22	1
M39006-09-8178		4-61	1
		4-66	1
		7-75	1
		7-78	1
M39006-21-0059		6-63A	1
		7-77A	1
NAS1068A04		3-25	6
P313-0132-000		3-14	4
		3-18	4
		3-18	4
		3-18	2
		5-4	1
		5-10	2
		6-40	1
P321-0205-000		2-197	3
P322-0156-000		2-194	2
P322-0163-000		2-34	4
P322-0166-000		2-40	2
P322-0169-000		2-49	6
		2-186	2
P330-2284-000		1-8	2

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		2-64	1			4-22	1
		2-156	2			4-50	1
		2-246	1			5-15	1
		2-248	1			7-15	1
P330-2288-000		2-224	2			7-51	1
P330-2290-000		1-7	4			7-61	1
		3-16	4	RCR07G223KS		4-29	1
		3-16	4			4-35	1
		3-16	2			7-33	1
		3-20	4			7-44	1
		3-20	4	RCR07G225KS		4-47	1
		3-20	2			7-55	1
		3-22	2	RCR07G272KS		6-79	1
P330-3059-330		2-46	2	RCR07G273KS		4-12A	1
P347-0022-000		2-204	2			4-15B	1
		2-211	2			4-15B	1
		2-219	2			4-55A	1
P347-1268-000		1-12	2			7-64	1
		1-13A	2	RCR07G332KS		5-39	1
RA22638		2-59	2	RCR07G393KS		5-12A	1
		2-252	2			6-24	1
RCR05G103KS		8-4	1			6-27	1
RCR05G104KS		8-7	1	RCR07G395KS		6-81	1
RCR05G105JS		5-13A	1	RCR07G472KS		4-10	1
		5-13A	1			6-79A	1
		5-21D	1	RCR07G561KS		2-144	1
RCR05G153KS		8-4	1	RCR07G563KS		6-28	1
RCR05G274KS		8-7	1	RCR07G822KS		4-10	1
RCR05G333KS		8-1	1			4-10	1
		8-5	1			6-14	1
RCR05G473KS		8-7	1			6-19	1
RCR07G102KS		4-23	1			7-13	1
		7-49	1	RCR07G824KS		4-46	1
RCR07G103KS		4-15	1			7-54	1
		4-15	1	RCR20G221KS		4-54A	1
		4-15A	1			7-67	1
		6-20	1	RCR32G102KS		5-37B	1
		6-58	1	RCR32G122KS		5-37A	1
RCR07G104KS		4-48A	1	RL42S911G		6-59	1
		4-48A	1	RN55D1002F		5-37	1
		4-53A	1			5-40	1
		4-53A	1			6-56	1
		5-12B	1			6-60	1
		6-38	1			6-63	1
		6-69	1	RN55D1003F		5-14A	1
		7-17A	1			5-42	1
		7-57	1			5-44	1
		7-65	1			6-80	1
RCR07G105KS		6-37	1	RN55D1102F		6-53	1
RCR07G122KS		4-16	1	RN55D1132F		6-4	1
		4-16	1	RN55D1152F		6-84	1
		4-16A	1	RN55D12R1F		4-30	1
		4-62	1			7-27	1
		7-18	1	RN55D1242F		6-75	1
		7-76	1	RN55D1330F		4-34	AR
RCR07G123KS		4-9A	1			7-36	AR
		4-9A	1	RN55D1331F		5-45B	1
		5-34	1	RN55D1470F		4-34A	AR
		7-12	1			7-37	AR
RCR07G124KS		4-45	1	RN55D1472F		4-33	1
		7-74	1			7-43	1
RCR07G153KS		4-12A	1	RN55D1503F		5-12E	1

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		7-38	AR	SL441-434WHT		4-74	16
RN55D1690F		4-34C	AR			4-74	17
		7-39	AR			5-47	6
RN55D1743F		6-71	1			5-47	16
		6-72	1			6-93	26
RN55D1780F		4-34D	AR			7-87	21
		7-40	AR			7-87	17
RN55D1872F		6-77	1			8-10	11
		6-78	1	S125-375NP15LY5		2-81	1
RN55D1960F		4-34E	AR			2-86	1
		7-41	AR			2-99	1
RN55D2003F		5-2C	1			2-104	1
RN55D2102F		6-74	1	S3FC3P15LY5		2-230	3
RN55D2150F		4-34F	AR			2-243	3
		7-42	AR	S3332CEP25LY5		2-53	1
RN55D2492F		6-33	1			2-54	1
RN55D2613F		5-45C	1	S3332CP25LY5		2-68	2
RN55D2672F		6-54	1	S3332FCE3P25LY5		2-66	2
RN55D2743F		6-85	1	S3332FC3P15LY5		2-65	2
RN55D2802F		6-25	1			2-74	2
		6-26	1	S4FC3P15LY5		2-127	1
RN55D3013F		6-44	1	S418FC3P15LY5		2-75	1
RN55D3092F		6-13	1			2-77	1
RN55D3161F		4-32	1			2-80	1
		4-44	1			2-92	1
		7-47	1			2-93	1
		7-53	1			2-95	1
RN55D3162F		6-2	1			2-98	1
		6-86	1			2-110	1
RN55D3241F		5-2B	1			2-111	1
RN55D3742F		6-34	1			2-118	1
RN55D4530F		4-31	1			2-119	1
		7-48	1			2-126	1
RN55D4532F		6-90	1			2-134	1
RN55D5111F		6-76	1			2-183	1
RN55D5901F		5-2A	1			2-202	1
RN55D6491F		5-14A	1	S614C5A245P25LY5		2-200	1
		5-21E	1	UA741HM		6-5	1
RN55D8872F		4-69	1			6-31	1
		7-80	1			6-45	1
RN60D1002F		4-63	1			6-50	1
		4-64	1			6-51	1
RN60D3161F		5-28	1	0-022X022		2-21	2
		5-45A	1			2-31	2
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RN60D9533F		6-89	1	015-3184-020		2-137	1
RS2C23-970R0F		4-48	1			2-137	1
		7-56	1	1N4109		5-16A	1
R22NCFMA1-26		3-27	8	1N4454		6-8	1
R4008X3-32CHROMATEDP		5-18	1			6-8A	1
						6-9	1
		5-49	1			6-11	1
SAE111		5-16	1			6-12	1
SL347-322WHT		2-148	1			6-49	1
SL354-351WHT		2-147	2			6-64	1
		4-73	79			6-65	1
		4-73	75			6-66	1
		5-46	62			6-67	1
		5-46	82			6-70	1
		6-94	95			6-83	1
		7-86	77			6-87	1

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1N645		3-11A	1
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		5-43	1
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		6-43	1
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109D476X0050F2		4-17	1
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		6-96	7
119-0507-000009		4-75	5
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		6-97	4
		7-88	5
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127-95		2-171	1
130D107X0040F2		6-63A	1
		7-77A	1
130D206X0050C2		7-68A	1
130D226X0070F2		4-61	1
		4-66	1
		7-75	1
		7-78	1
130D255C2070C2		5-30	1
		5-36	1
130D686X0040F2		4-62A	1
		4-62A	1
		5-45F	1
		5-45G	1
		5-45H	1
138D206X0075C2		7-68A	1
138D686X0060F2		4-62A	1
139-2336-000		5-17	1
		5-48	1
150D104X0035A2		5-32	1
150D105X0035A2		4-56B	1
		4-56B	1
		4-71	1

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150D475X0035B2		4-41	1
		4-42	1
		4-43	1
		7-52	1
		7-82	1
		7-83	1
151D116X0015X2		8-6	1
151D505X9020X2		5-29	1
164-7		2-206	1
		2-206	1
177D101		5-12G	1
184-6330-360		4-62A	1
		4-62A	1
		5-45F	1
		5-45G	1
		5-45H	1
184-6330-370		6-63A	1
		7-77A	1
184-6330-410		7-68A	1
184-7396-000		4-41	1
		4-42	1
		4-43	1
		7-52	1
		7-82	1
		7-83	1
184-7398-000		4-56B	1
		4-56B	1
		4-71	1
		7-81	1
184-7408-000		5-32	1
184-7788-000		4-17	1
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		4-17A	1
		7-21	1
		7-22	1
184-7867-000		4-61	1
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184-7870-000		5-30	1
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184-7943-000		5-31	1
		5-31	1
184-8284-000		8-6	1
184-8366-000		5-29	1
184-9084-440		6-61	1
		6-62	1
184-9084-680		6-36	1
184-9093-020		5-12G	1
184-9103-830		4-17	1
		4-17A	1
		7-21	1
		7-22	1
184-9104-260		4-61	1
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		7-78	1
184-9106-300		5-31	1
		5-45F	1
184-9116-110		6-63A	1
		7-77A	1
184-9117-140		4-62A	1
184-9117-170		7-68A	1
192 0002 010		1-9	1
192 2018 010		2-38	1
192-0002-010		1-9	1
192-2018-010		2-38	1
2-2N219-7		2-14	1
2N2907A		5-20	1
		6-21	1
2N3700		5-21	1
2N3910		6-22	1
2N4236		6-35	1
2N718A		5-8A	1
		5-14	1
2N887CB1125		4-18	1
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2N956		4-11	1
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2N956SS9315		4-11	1
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		7-14	1
		7-16	1
		7-50	1
200-2394-010		2-14	1
229-2049-010		2-221	1
23846-007		2-28	2
253818		2-41	1
260-2709-000		2-47	1
262-1095-000 5		2-25A	4
PCT			
262-1883-000		2-5	1
		2-6	1
262-1883-020		2-5	1
		2-6	1
264-0931-060		4-70A	1
		7-52A	1
264-0931-070		4-70A	1
		7-52A	1
266-7002-000		2-26	1
266-7096-020		2-27	1
275001		4-70A	1
		7-52A	1
27501-5		4-70A	1
		7-52A	1
280-3441-000		1-4	1
288-2154-000		4-14	1
		7-17	1
3SAV1272A2		3-12	1
		3-13	1
		3-13A	1
		5-9	1
30YY2088		2-47	1

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304-0332-000		5-40A	1	310-0278-000		3-9	1
		5-40A	1			3-15	4
305-0169-000 A		5-18	1			3-19	4
TEDP						3-19	4
		5-49	1			3-19	2
305-1351-000		3-26	12			5-5	1
305-2064-010		2-59	2			5-11	2
		2-252	2			6-41	1
306-1532-000		2-148	1	310-0501-000		2-21	2
306-2222-100		4-74	16			2-31	2
		4-74	17	310-0550-000		2-22	2
		5-47	6			2-32	2
		5-47	16	310-0756-020		2-232	1
		6-93	26	310-6320-000		2-229	1
		7-87	21	311-0417-000		2-158	1
		7-87	17	311-0420-000		2-181	2
		8-10	11	311-0430-000		2-11	1
306-2474-010		2-147	2	311-0782-000		2-180	4
		4-73	79	311-1553-000		2-89	1
		4-73	75			2-107	1
		5-46	62	311-1558-000		2-89	1
		5-46	82			2-107	1
		6-94	95			2-124	1
		7-86	77	311-1559-000		2-114	1
		7-86	76			2-116	1
309-0003-010		2-66	2			2-122	1
309-1174-010		2-81	1			2-132	1
		2-86	1			2-164	1
		2-99	1			2-173	1
		2-104	1	313-0132-000		3-14	4
309-1175-010 5		2-200	1			3-18	4
309-1492-000		2-177	2			3-18	4
309-1494-000		2-171	1			3-18	2
309-1557-000		2-230	3			5-4	1
		2-243	3			5-10	2
309-1558-000		2-127	1			6-40	1
309-1559-000		2-65	2	313-9001-000		2-143	2
		2-74	2	321-0205-000		2-197	3
309-1561-000		2-75	1	322-0156-000		2-194	2
		2-77	1	322-0163-000		2-34	4
		2-80	1	322-0166-000		2-40	2
		2-92	1	322-0169-000		2-49	6
		2-93	1			2-186	2
		2-95	1	323-0254-000		2-24	2
		2-98	1			2-30	2
		2-110	1			2-45	4
		2-111	1			2-146	2
		2-118	1	323-0256-000		2-20	2
		2-119	1	323-0262-000		2-139	2
		2-126	1	3250LC10-501		5-27	1
		2-134	1			6-15	1
		2-183	1	328-0370-000		2-129	2
		2-202	1			2-141	2
309-1862-000		2-68	2			2-151	4
309-1967-020		2-53	1			2-162	4
		2-54	1			2-214	2
310-0070-000		5-26	2	328-0371-000		1-3	2
		6-17	2	328-0372-000		2-4	1
310-0275-000		2-198	3			2-136	2
		2-205	2			2-207	2
		2-212	2	328-0373-000		2-225	1
		2-220	2	330-2284-000		1-8	2

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
330-2284-000		2-56	3	351-1029-010		6-5	1
		2-64	1			6-31	1
		2-156	2			6-45	1
		2-246	1			6-50	1
		2-248	1			6-51	1
330-2288-000		2-224	2	351-1071-020		5-2D	1
330-2290-000		1-7	4			6-10	1
		3-16	4	352-0318-000		5-8A	1
		3-16	4			5-14	1
		3-16	2	352-0400-010		4-11	1
		3-20	4			4-13	1
		3-20	4			4-37	1
		3-20	2			4-39	1
		3-22	2			6-23	1
330-3059-330		2-46	2			6-29	1
330-4799-000		2-28	2			7-3	1
333-0837-000		3-27	8			7-14	1
333-0887-000		3-25	6			7-16	1
333-1455-020		8-11	2			7-50	1
340-0004-000		2-199	1	352-0400-030		4-11	1
340-0021-000		2-78	1			4-13	1
		2-82	1			4-13	1
		2-96	1			4-37	1
		2-100	1			4-39	1
340-0086-000		2-51	2			7-3	1
340-0087-000		2-231	1			7-14	1
340-0256-000		2-10	1			7-16	1
340-0257-000		2-18	2			7-50	1
340-1046-010		4-38A	1	352-0551-010		5-20	1
		7-46	1			6-21	1
340-1082-010		2-168	1	352-0692-010		6-22	1
342-0045-000		3-20A	2	352-0695-050		6-35	1
342-0051-000		3-16A	2	352-0734-020		5-21	1
342-0134-000		2-188	3	352-9508-000		5-50	1
343-0123-000		3-3	4			6-52	7
		3-5	4			6-96	7
343-0124-000		2-226	1	352-9509-000		4-75	5
343-0126-000		5-25	2			5-51	3
		6-16	2			5-51	4
343-0132-000		3-8	2			6-30	4
		5-12	2			6-97	4
343-0133-000		5-40B	1			7-88	5
		5-40B	1	353-2607-000		3-11A	1
347-0022-000		2-204	2			4-3	1
		2-211	2			4-4	1
		2-219	2			4-5	1
347-1268-000		1-12	2			4-6	1
		1-13A	2			4-7	1
350-0011-010		4-38	1			4-8	1
		7-45	1			4-9	1
350-0083-030		5-3	1			4-12	1
		6-39	1			4-21	1
350-0093-010		4-36	1			4-25	1
		7-34	1			4-25A	1
350-0095-010		4-2	1			4-25A	1
		7-4	1			4-26	1
350-9074-010		4-40	1			4-27	1
		7-2	1			4-28	1
350-9075-010		5-2	1			4-49	1
		6-32	1			4-50A	1
350-9076-010		5-6	1			4-50A	1
350-9077-010		5-22	1			4-51	1
350-9078-010		5-23	1			4-52	1

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
353-2607-000		4-53B	1	353-3176-000		5-45	1
		4-53C	1			6-43	1
		4-54	1	353-3177-000		4-20	1
		4-55	1			7-23	1
		4-55B	1	353-3370-000		4-18	1
		4-55B	1			7-11	1
		4-56	1	353-3591-110		5-16A	1
		4-56	1	353-3644-010		6-8	1
		4-56A	1			6-8A	1
		4-56A	1			6-9	1
		4-57	1			6-11	1
		4-58	1			6-12	1
		4-59	1			6-49	1
		4-60	1			6-64	1
		4-64A	1			6-65	1
		5-6A	1			6-66	1
		5-7	1			6-67	1
		5-8	1			6-70	1
		5-12C	1			6-83	1
		5-12D	1			6-87	1
		5-12F	1	353-6481-330		6-43	1
		5-13	1			6-43A	1
		5-21B	1	353-6532-030		6-91	1
		5-21C	1	353-6532-170		6-46	1
		5-35	1	371-6608-000		3-17	1
		5-45D	1	372-5878-010		3-6	1
		5-45E	1	372-5878-020		2-35	1
		6-12A	1	373-8010-000		3-10	1
		6-33A	1	377-0718-060		2-142	1
		7-5	1	381-1846-060		5-27	1
		7-6	1			6-15	1
		7-7	1	381-1849-010		2-213	1
		7-8	1	381-1850-010		2-206	1
		7-9	1			2-206	1
		7-10	1	40C73A1		5-33	1
		7-20	1	4007-4HT		3-11	1
		7-28	1	4040-5HDSPL		5-40A	1
		7-29	1			5-40A	1
		7-30	1	482-5082-020		2-41	1
		7-31	1	482-5082-050		2-41	1
		7-32	1	50-9-221-501		2-142	1
		7-58	1	502-5071		2-213	1
		7-59	1	5105-25C		4-38A	1
		7-60	1			7-46	1
		7-62	1	5133-6C		2-10	1
		7-66	1	522-4825-002		1-1	1
		7-67A	1	522-4825-004		1-1	1
		7-68	1	522-4825-005		1-1	1
		7-69	1	522-4825-006		1-1	1
		7-69A	1	522-4825-007		1-1	1
		7-69B	1	522-4825-008		1-1	1
		7-70	1	541-5974-002		3-15A	2
		7-71	1	542-6138-002		2-218	1
		7-72	1	544-2928-002		2-8	1
		7-73	1			2-17	2
		7-77	1	544-3521-002		2-216	1
		8-2	1	544-3521-003		2-150	1
		8-8	1			2-161	1
353-2710-000		4-19	1	544-3643-002		2-203	2
		5-43	1			2-210	2
		7-19	1			2-217	1
353-2985-000		6-7	1	544-8792-003		2-228	AR
353-3086-000		6-48	1	57-0180		4-14	1

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
57-0180		7-17	1	705-0964-000		4-34F	AR
6009-8A		5-17	1			7-42	AR
		5-48	1	705-1002-000		5-45B	1
609-3730-001		2-167A	1	705-1020-000		4-32	1
		2-167A	1			4-44	1
609-3732-001		2-155	1			7-47	1
		2-155	1			7-53	1
609-3810-001		1-2	1	705-1033-000		5-2A	1
		1-2	1	705-1035-000		5-14A	1
609-3810-002		1-2	1			5-21E	1
609-4742-001		3-4	1	705-1052-000		4-33	1
		6-1	RF			7-43	1
609-4743-001		3-2	1	705-1112-000		5-45C	1
		7-1	RF	705-1113-000		6-85	1
609-4744-001		1-14	1	705-1454-560		6-76	1
		2-1	RF	705-1454-630		5-37	1
609-4744-002		1-14	1			5-40	1
		2-1	RF			6-56	1
609-4745-001		1-15	1			6-60	1
		3-1	RF			6-63	1
609-6682-002		1-14	1	705-1454-640		6-53	1
618-1314-001		2-88	1	705-1454-750		6-2	1
		2-106	1			6-86	1
618-1315-001		2-79	1	705-1454-870		5-14A	1
618-1316-001		2-97	1			5-42	1
618-4196-001		5-52	1			5-44	1
618-4201-001		5-45J	1			6-80	1
618-4202-001		3-4	1	705-1468-440		6-4	1
		5-1	RF	705-1468-550		6-74	1
618-4222-001		3-21	1	705-1468-600		6-54	1
618-5499-001		2-71A	1	705-1468-620		6-13	1
618-5501-001		2-43	1	705-1468-660		6-34	1
618-5502-001		2-44	1	705-1468-700		6-90	1
621-1424-001		3-23	1	705-1468-840		4-69	1
621-9604-001		8-9	1			7-80	1
621-9604-002		8-12	1	705-1468-970		6-71	1
621-9605-001		3-17A	1			6-72	1
		8-	RF	705-1469-770		4-31	1
623-9677-001		2-90	1			7-48	1
		2-108	1	705-1470-880		6-84	1
628-1058-001		5-45J	1	705-1470-890		6-75	1
628-1134-001		4-72	1	705-1470-940		6-77	1
628-1135-001		4-72	1			6-78	1
628-1151-001		6-92	1	705-1470-980		6-33	1
628-1176-001		7-85	1	705-1471-010		6-25	1
662-0326-010		3-7	1			6-26	1
667-0218-010		5-16	1	705-1471-240		6-44	1
677-1287-000		6-42	1	705-3604-090		5-12E	1
705-0685-000		6-88	1	705-3604-150		5-2C	1
705-0904-000		4-30	1	705-3605-240		5-2B	1
		7-27	1	705-6620-000		5-28	1
705-0954-000		4-34	AR			5-45A	1
		7-36	AR			6-82	1
705-0956-000		4-34A	AR	705-6644-000		4-63	1
		7-37	AR			4-64	1
705-0957-000		4-34B	AR	705-6728-000		6-6	1
		7-38	AR	705-6739-000		6-89	1
705-0959-000		4-34C	AR	745-0740-000		2-144	1
		7-39	AR	745-0749-000		4-23	1
705-0960-000		4-34D	AR			7-49	1
		7-40	AR	745-0752-000		4-16	1
705-0962-000		4-34E	AR			4-16	1
		7-41	AR			4-16A	1

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
745-0752-000		4-62	1	745-1864-250		5-13A	1
		7-18	1			5-21D	1
		7-76	1	745-2377-000		8-4	1
745-0764-000		6-79	1	745-2383-000		8-4	1
745-0767-000		5-39	1	745-2395-000		8-1	1
745-0773-000		4-10	1			8-5	1
		6-79A	1	745-2401-000		8-7	1
745-0782-000		4-10	1	745-2413-000		8-7	1
		4-10	1	745-2428-000		8-7	1
		6-14	1	745-3352-000		5-37B	1
		6-19	1	745-3356-000		5-37A	1
		7-13	1	745-7121-000		6-59	1
745-0785-000		4-15	1	747-7600-160		4-48	1
		4-15	1			7-56	1
		4-15A	1	757-9685-000		1-11	1
		6-20	1	757-9685-008		1-11	1
		6-58	1	761-2956-002		6-95	1
745-0788-000		4-9A	1	761-5316-030		2-233	AR
		4-9A	1	761-5316-031		2-234	AR
		5-34	1	761-5316-032		2-235	AR
		7-12	1	761-5316-033		2-236	AR
745-0791-000		4-12A	1	761-5316-034		2-237	AR
		4-12A	1	767-7765-001		5-24	1
		4-22	1			6-18	1
		4-50	1	775-5250-001		2-71	1
		5-15	1	775-5250-002		2-71	1
		7-15	1	775-5250-003		2-71	1
		7-51	1	775-5255-001		2-23	1
		7-61	1	775-5301-001		2-196	1
745-0797-000		4-29	1	775-5304-001		2-182	1
		4-35	1	775-5307-001		2-117	1
		7-33	1			2-125	1
		7-44	1	775-5308-001		2-123	1
745-0800-000		4-12A	1	775-5309-001		2-121	1
		4-15B	1	775-5310-001		2-120	1
		4-15B	1	775-5312-001		2-37	1
		4-55A	1	775-5312-002		2-36	1
		7-64	1	775-5314-001		2-39	1
745-0806-000		5-12A	1	775-5318-001		2-242	1
		6-24	1	775-5319-001		2-223	1
		6-27	1	775-5320-001		2-83	1
745-0812-000		6-28	1			2-101	1
745-0821-000		4-48A	1	775-5321-001		2-113	1
		4-48A	1	775-5322-001		2-115	1
		4-53A	1	775-5324-001		2-112	1
		4-53A	1	775-5325-001		2-131	1
		5-12B	1	775-5326-001		2-255	1
		6-38	1	775-5327-001		2-12	1
		6-69	1	775-5330-001		2-130	1
		7-17A	1	775-5331-001		2-133	1
		7-57	1	775-5332-001		2-62	1
		7-65	1	775-5333-001		2-241	1
745-0824-000		4-45	1	775-5334-001		2-185	1
		7-74	1	775-5335-001		2-192	1
745-0854-000		4-46	1	775-5336-001		2-191	1
		7-54	1	775-5337-001		2-209	1
745-0857-000		6-37	1	775-5338-001		2-50	1
745-0869-000		4-47	1	775-5339-001		2-135	1
		7-55	1	775-5340-001		2-85	1
745-0878-000		6-81	1	775-5341-001		2-103	1
745-1324-000		4-54A	1	775-5342-001		2-195	1
		7-67	1	775-5343-001		2-189	1
745-1864-250		5-13A	1	775-5344-001		2-245	1

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
775-5345-001		2-97	1	778-0172-002		2-43	1
775-5346-001		2-79	1	778-0173-001		2-58	2
775-5347-001		2-88	1			2-251	2
		2-106	1	778-0174-001		2-249	1
775-5348-001		2-29	1	778-0175-001		2-55	1
775-5351-001		2-187	1	778-0286-001		2-3	1
775-5352-001		2-52	2	778-0286-003		2-3	1
775-5353-001		2-91	1	778-0287-001		2-19	1
775-5354-001		2-109	1	778-1158-001		2-154	1
775-5355-001		2-215	1	778-1200-001		2-152	2
775-5356-001		2-193	1	778-1205-001		2-170	1
775-5357-001		2-84	1	778-1206-001		2-153	1
775-5357-002		2-102	1	778-1207-001		2-128	1
775-5358-001		2-105	1	778-1208-001		2-140	1
775-5358-002		2-105	1	778-1295-001		2-16	2
775-5359-001		2-87	1	778-1553-001		3-23	1
775-5359-002		2-87	1	778-1704-001		2-69	2
775-5361-001		2-208	1	779-3244-001		2-159	2
775-5362-001		2-244	1	779-3257-001		2-157	1
775-5362-002		2-222	2	779-3258-001		2-160	1
775-5364-001		2-247	1	779-3327-001		2-13	1
775-5367-001		2-163	1	779-3590-001		2-73	AR
775-5368-001		2-169	1	779-3728-001		2-67	2
775-5370-001		2-166	1	791-2204-001		2-2	1
775-5371-001		2-174	1	791-2205-001		2-15	1
775-5372-001		2-175	1	791-2273-001		2-7	1
775-5374-001		2-172	1	791-8387-001		1-13	1
775-5380-001		2-167	1	792-0619-001		2-201	1
775-5381-001		2-179	1	792-0620-001		2-190	1
775-5383-001		2-42	1	792-0827-001		4-33A	1
775-5385-001		2-72	2			7-35	1
775-5387-001		3-28	1	792-1222-001		1-2	1
775-5388-001		2-63	1	792-1261-001		2-71A	1
775-5390-002		2-60	1	797-6599-001		3-21	1
		2-253	1	797-6600-001		1-10	1
775-5391-001		2-25B	1	797-6621-001		3-2	1
775-5394-001		2-239	1			4-1	RF
775-5395-001		2-238	1	797-6621-002		3-2	1
775-5396-001		2-240	1			4-1	RF
775-5398-001		2-149	1	797-6625-001		3-4	1
775-5399-001		2-138	2			5-1	RF
775-5400-001		2-176	1	797-6680-001		1-6	1
775-5731-001		2-145	1	797-6681-001		2-70	1
775-5732-001		2-178	1	797-6681-003		2-70	1
775-5733-001		2-9	1	797-6681-004		2-70	1
775-5734-001		2-155	1	797-6682-001		1-14	1
		2-155	1			2-1	RF
775-5735-001		3-24	1	797-6682-002		2-1	RF
775-5737-001		2-25	1	797-6689-001		1-15	1
775-5738-001		2-76	1			3-1	RF
775-5738-002		2-76	1	797-6689-002		1-15	1
775-5739-001		2-94	1			3-1	RF
775-5739-002		2-94	1	797-7181-001		2-71A	1
775-5740-001		2-48	1	797-7238-001		2-70	1
775-5741-001		2-184	1	797-7238-002		2-70	1
775-5747-001		2-165	1	797-7238-003		2-70	1
778-0170-002		2-57	2	797-7238-004		2-70	1
		2-61	1	797-7239-001		1-14	1
		2-250	2			2-1	RF
		2-254	1	797-7239-002		1-14	1
778-0171-001		2-44	1			2-1	RF
778-0171-002		2-44	1	797-7575-001		2-33	1
778-0172-001		2-43	1	797-7634-001		3-21	1

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PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ	PART NUMBER	AIRLINE PART NO	FIG-ITEM	TTL REQ
797-7684-001		2-90	1				
		2-108	1				
797-7701-001		1-2	1				
797-7701-002		1-2	1				
797-7701-003		1-2	1				
805-014X5V0103Z		4-65	1				
		4-65A	1				
		4-65A	1				
		7-69C	1				
850 3-4IN		1-5	AR				
855-502X5V0203Z		4-70	1				
		7-84	1				
913-3009-000		5-33	1				
913-3678-000		4-70	1				
		7-84	1				
913-3680-000		4-65	1				
		4-65A	1				
		4-65A	1				
		7-69C	1				
913-4018-000		7-81A	1				
913-4496-130		4-55C	1				
		4-55D	1				
		4-68	1				
		5-19	1				
		5-38	1				
		6-3	1				
		6-46A	1				
		7-14A	1				
		7-79	1				
913-5019-320		8-3	1				
913-5019-500		5-30	1				
		5-30	1				
		5-36	1				
		5-36	1				
		6-55	1				
		6-57	1				
913-5019-530		6-47	1				
913-5019-840		5-6B	1				
913-5661-250		4-20A	1				
		4-20A	1				
		4-24	1				
		4-30A	1				
		4-30A	1				
		4-36A	1				
		4-53	1				
		5-41	1				
		7-24	1				
		7-25	1				
		7-26	1				
		7-33A	1				
		7-63	1				
933-1084-050		6-68	1				
		6-73	1				
974-1065-180		3-12	1				
		3-13	1				
		3-13A	1				
		5-9	1				

4. Reference Designation Index

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A1CR10	6-67	A1R3	6-4	A2CR38	7-71
A1CR11	6-64	A1R30	6-90	A2CR39	7-7
A1CR12	6-65	A1R31	6-53	A2CR40	7-70
A1CR13	6-49	A1R32	6-56	A2CR41	7-28
A1CR14	6-12A	A1R33	6-54	A2CR42	7-32
A1CR2	6-12	A1R34	6-60	A2CR43	7-30
A1CR3	6-87	A1R35	6-44	A2CR44	7-31
A1CR4	6-83	A1R36	6-33	A2CR48	7-69
A1CR5	6-9	A1R37	6-37	A2CR48	7-69A
A1CR55	6-33A	A1R38	6-34	A2CR49	7-62
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A1CR6	6-8A	A1R4	6-81	A2CR51	7-77
A1CR8	6-70	A1R40	6-58	A2CR52	7-69B
A1CR9	6-66	A1R41	6-38	A2CR53	7-67A
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A1C40	6-63A	A1R7	6-75	A2C21	7-75
A1C40	6-63A	A1R8	6-74	A2C21	7-75
A1C5	6-61	A1R9	6-77	A2C22	7-21
A1C6	6-36	A1T1	6-42	A2C22	7-21
A1C7	6-3	A1U1	6-5	A2C23	7-78
A1C8	6-57	A1U2	6-10	A2C23	7-78
A1C9	6-55	A1U3	6-50	A2C24	7-25
A1Q2	6-29	A1U4	6-51	A2C28	7-63
A1Q3	6-21	A1U5	6-45	A2C29	7-22
A1Q4	6-23	A1U6	6-31	A2C30	7-26
A1Q5	6-22	A1U7	6-32	A2C31	7-24
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A1R21	6-26	A2CR29	7-10	A2Q10	7-14
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A1R23	6-24	A2CR31	7-9	A2Q11	7-50
A1R24	6-28	A2CR32	7-8	A2Q12	7-3
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A2R200	7-67	DS1	2-5	TB1CR50	4-25A
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A2R84	7-56	L1	2-41	TB1C20	4-43
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A2R90	7-57	TB1	3-2	TB1C29	4-17A
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A2R91	7-65	TB1	4-1	TB1C30	4-30A
A2R92	7-12	TB1CR13	4-12	TB1C31	4-20A
A2R93	7-64	TB1CR14	4-9	TB1C31	4-20A
A2R95	7-61	TB1CR20	4-3	TB1C32	4-56B
A2R96	7-51	TB1CR21	4-59	TB1C32	4-56B
A2R97	7-49	TB1CR22	4-49	TB1C33	4-62A
A2R98	7-74	TB1CR23	4-21	TB1C33	4-62A
A2R99	7-13	TB1CR29	4-5	TB1C33	4-62A
A2U15	7-34	TB1CR30	4-60	TB1C34	4-36A
A2U16	7-2	TB1CR31	4-6	TB1C36	4-55C
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TB1R200	4-54A
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TB1R41	4-45
TB1R57	4-31
TB1R58	4-33
TB1R59	4-44
TB1R66	4-32
TB1R67	4-47
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TB1R68	4-16
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TB1R72	4-62
TB1R73	4-30
TB1R78	4-35
TB1R83	4-46
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TB1R85	4-34A
TB1R85	4-34B
TB1R85	4-34C
TB1R85	4-34D
TB1R85	4-34E
TB1R85	4-34F
TB1R86	4-69
TB1R87	4-29
TB1R88	4-55A
TB1R89	4-12A
TB1R89	4-12A
TB1R89	4-12A
TB1R90	4-48A
TB1R90	4-48A
TB1R91	4-53A
TB1R91	4-53A
TB1R92	4-9A
TB1R92	4-9A
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TB1R93	4-15B
TB1U1	4-38
TB1U3	4-36
TB1U7	4-40
TB1U8	4-2
TB1VR41	4-20
TB1VR43	4-19
TB2	3-4
TB2	3-4
TB2	5-1
TB2	5-1
TB2CR10	5-13
TB2CR11	5-8
TB2CR12	5-7
TB2CR15	5-35
TB2CR16	5-45E
TB2CR50	5-16A
TB2CR51	5-21C
TB2CR52	5-21B
TB2CR53	5-12F
TB2CR54	5-12D
TB2CR55	5-6A
TB2CR56	5-12C
TB2CR57	5-45D
TB2C1	5-32
TB2C14	5-30
TB2C14	5-30
TB2C14	5-30
TB2C15	5-36
TB2C15	5-36
TB2C15	5-36
TB2C2	5-33
TB2C25	5-31
TB2C25	5-31
TB2C26	5-29
TB2C27	5-41
TB2C28	5-45G
TB2C3	5-19
TB2C33	5-45F
TB2C33	5-45F
TB2C35	5-45H
TB2C50	5-12G
TB2C51	5-6B
TB2C8	5-38
TB2K3	5-9
TB2Q5	5-14
TB2Q50	5-8A
TB2Q6	5-21
TB2Q7	5-20
TB2R1	5-40
TB2R100	5-14A
TB2R100	5-14A
TB2R101	5-45A
TB2R102	5-45B
TB2R103	5-45C
TB2R104	5-21E
TB2R105	5-12E
TB2R106	5-12B
TB2R107	5-12A
TB2R108	5-2A
TB2R109	5-2C
TB2R110	5-2B
TB2R111	5-37B
TB2R2	5-37
TB2R27	5-39
TB2R28	5-15
TB2R29	5-34
TB2R3	5-42
TB2R4	5-44
TB2R62	5-27
TB2R82	5-28
TB2R88	5-13A
TB2R88	5-13A
TB2R88	5-21D
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TB2T1	5-16
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TB2U5	5-22
TB2U6	5-2
TB2U9	5-6
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.153557

339H-2 RADIO ALTITUDE INDICATOR (522-4825-001, -002, -004, -005, -006, -008)

SERVICE INFORMATION LETTER 1-81

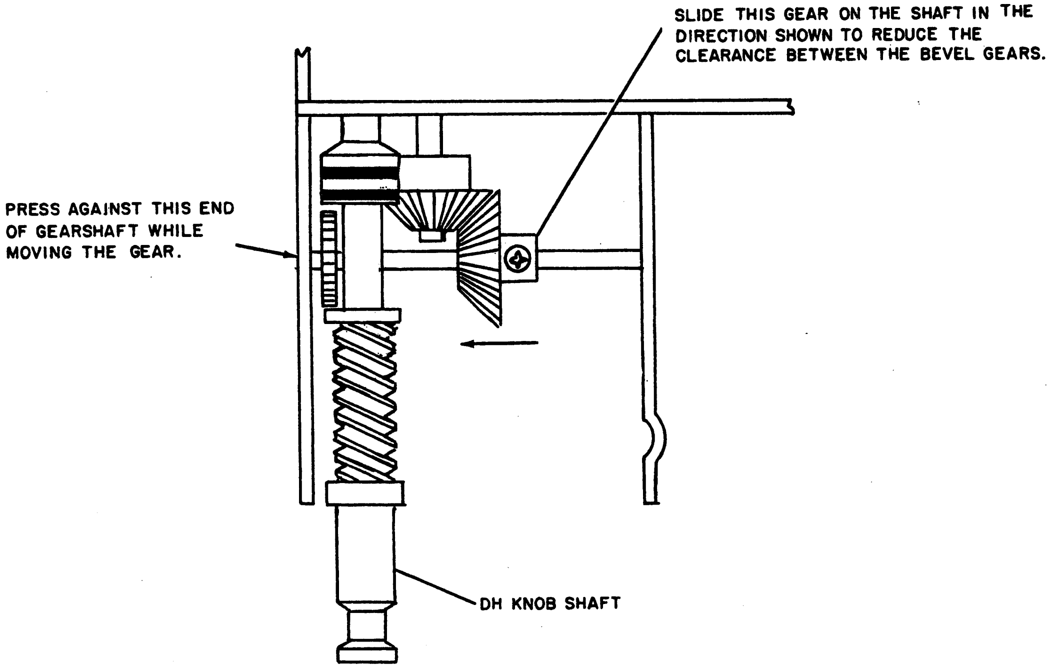
OSCILLATION OF DECISION HEIGHT COUNTER DIGITS

Occasionally, some 339H-2 Radio Altitude Indicators exhibit an objectionable oscillation of the decision height counter digits. This oscillation is caused by excessive play in the decision height gear train and may be easily corrected by reducing the clearance between the two bevel gears shown in the following diagram.

Perform the following steps in order to reduce the clearance between the two level gears.

1. Remove the two setscrews from the bevel gear on the gearshaft perpendicular to the DH knob shaft.
2. Remove the dried staking compound from the two setscrews removed and the bevel gear using glyptal thinner 1505 (005-0164-000).
3. Recoat the setscrews with new glyptal 7526F (005-0133-000) and replace them in the bevel gear, but do not tighten.
4. Hold firmly against the edge of the gearshaft, indicated by an arrow in the drawing, and slide the bevel gear solidly into its mating bevel gear.
5. Carefully retighten the setscrews while still holding the bevel gears together.

Conduct the minimum performance test as defined in the 339H-2 Radio Altitude Indicator Overhaul Manual (with illustrated parts catalog), Collins part number 523-0759413 or 523-0762906.


SLIDE THIS GEAR ON THE SHAFT IN THE DIRECTION SHOWN TO REDUCE THE CLEARANCE BETWEEN THE BEVEL GEARS.
PRESS AGAINST THIS END OF GEARSHAFT WHILE MOVING THE GEAR.
DH KNOB SHAFT

Front End of Indicator, Bottom View

153366

339H-2 RADIO ALTIMETER INDICATOR (522-4825-002, -004, -008)

SERVICE INFORMATION LETTER 2-80

NEW PART NUMBER FOR CAPACITORS C25 AND C35

Two electrolytic capacitors in the 339H-2 indicator, Collins part number 522-4825-002, -004, -008, have been replaced with a more reliable part. C25 has been changed from 184-7943-000 to 184-9106-300; and C35 has been changed from 184-6330-360 to 184-9117-140.

Rockwell-Collins recommends that only the new parts be used as replacements. Replacement of capacitors in indicators presently in service need not be accomplished until routine maintenance is required.

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